This is the Gemini News Center with a 9:30 a.m., EST status report on the Gemini 12 countdown and the overall Gemini 12 mission. In a matter of minutes, actually 9:43 a.m., EST, the Gemini spacecraft count will begin. The backup pilots for the Gemini 12 mission, Astronauts Gordon Cooper and Gene Cernan are now standing by at the blockhouse, and in a matter of minutes, they'll be boarding the Gemini spacecraft at the 100 foot level to start their prelaunch checkout of the spacecraft. The backups will remain in the spacecraft and be ready to report to the prime pilots, Astronauts Jim Lovell and Buzz Aldrin when they report on the scene this afternoon. Lovell and Aldrin are still asleep at this time. The plan, according to the astronaut countdown, is to awaken them at 11:30; however, if they do awaken earlier than that, they will get up at an earlier time. We will keep close watch on this, but our advisories right now are that the two astronauts are still asleep. To cover some of the highlights of what has transpired thus far, all is going very well with the countdown at this time. We brought the propellants aboard the Gemini Launch Vehicle starting at 2:53 a.m., EST, this morning, and completed the propellant loading in 3 hours and 21 minutes. The range in Agena countdown started, this was the real start of the countdown, at 4:23 a.m., EST, at T-680. The Atlas standard launch vehicle countdown came in at 8:23 a.m., EST, or the T-440 mark in the count and as we mentioned at the start of this status report, the next highlight comes up in

just several minutes when the spacecraft count begins. We've already been informed by phone just a matter of a few moments before coming up with this announcement, that the Test Conductor definitely intends to start this count. We can consider that the Gemini 12 count will start on time at T-360, 9:43 a.m. As we reported, the backup pilots, Cooper and Cernan, will be going aboard the spacecraft shortly to start their preliminary checkouts. So all is going well at this time of the Gemini 12 countdown. We'll be coming up with several more reports over the next hour or so from here in the News Center, and then the reports of Mission Control will begin at approximately 11 o'clock, 11 a.m., EST, this morning. During the still early part of the count at that time, the reports will be coming up about every half hour or so until we get deeper into the count. Obviously, if any problems arise, they will be reported either from here in the News Center or from Mission Control as rapidly as we know they have occurred. All is going well with the Gemini 12 countdown at this time, and just about at this point now, the Gemini spacecraft countdown starting. This is the Gemini News Center.

END OF TAPE

This is the Gemini News Center at Cocoa Beach. The countdown with the spacecraft of the Gemini 12 mission was picked up right on schedule at 9:43 this morning and all goes quite well leading to our planned liftoff times of 2:08 this afternoon and 3:46. Our formal announcements from the Mission Control Center at Cape Kennedy are scheduled to start about 11 o'clock, but as of now, the countdown proceeds quite well and repeating it again, we did pick up the spacecraft count at 9:43 this morning. This is the Gemini News Center.

END OF TAPE

This is Gemini Launch Control. We are at T-289 minutes and counting. That is T-289 and counting on the Gemini 12 mission, and all is going well with our simultaneous countdown at this time. The count actually started about 6 and a half hours ago with the beginning of the range countdown and will wind up with some nine different functions in the simultaneous countdown as we get closer to the planned Atlas/Agena liftoff. As reported, all is going well at this time. We also have a satisfactory weather forecast both here in the Cape area and around the world track. Astronauts Jim Lovell and Buzz Aldrin, the prime pilots, got up about 23 or 24 minutes ago, actually at 10:30 a.m., EST. The astronauts got up. We received confirmation that they did retire earlier this morning at one a.m. They went to bed at one a.m., and got up at 10:30 this morning. Meanwhile, their backup pilots, Astronauts Gordon Cooper and Gene Cernan are aboard the Gemini 12 spacecraft making preliminary checks, at the 100 foot level at Complex 19. At Complex 14, where we have the Atlas/Agena being checked out, the crew is gearing up for the start of some of the major propellant loading that is conducted during the final phase of the countdown. Coming up about seven minutes from now, the crew will start loading the hydrozine fuel aboard the Agena second stage. This will be followed by roll back of the gantry service structure and then they will load the acid oxidizer aboard the Agena. A little further on in the count, the final phase of the propellant loading for the Atlas/Agena,

the loading of the liquid oxygen aboard the Atlas first stage will begin. All systems going well. To repeat, the prime pilots are up, they got up at 10:30 a.m. EST. They will start their physical examination about 11:30, 11:30 a.m., EST, and have breakfast about 10 minutes later or 11:40 a.m., EST. Now at T-286 minutes, 52 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We are at T-255 minutes, 26 seconds and counting on the Gemini 12 count. All going well both at launch complex 19 with the Gemini 12 and launch vehicle, and at complex 14 with the Atlas/Agena. At this point at complex 14, we are just finishing up the loading of the hydrazine fuel aboard the Agena second stage. We are loading some 4000 pounds of fuel aboard the Agena this morning and all is going well. We expect to get a report shortly that this has been completed. About 12 minutes from this time, once we get the report for the Agena fuel loading has been completed, we'll start rolling back that gantry service structure at the pad. It will rolled back to its fall back position -- this takes about 30 minutes -- then the crew will be ready to load the oxidizer, the red-fuming nitric acid that is used as an oxidizer for the Agena in the second stage. In the meantime, the prime pilots for the mission, Astronauts Jim Lovell and Buzz Aldrin, are up at their crew quarters at the Kennedy Space Center. They will be going down the hall to start their final physical examination just a couple of minutes from now. This will be followed by breakfast in the crew quarters. They'll have about ten guests for breakfast, we'll give you a report on the guest list shortly. All going well at this point in the count, 254 minutes, 3 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-245 minutes and counting. T-245 and counting, all still going very well with our simultaneous countdown for Gemini 12. At this time, the prime pilots, Astronauts Jim Lovell and Buzz Aldrin, have gone down the hall from their crew quarters at NASA's Kennedy Space Center to take their final physical examination. This will take about ten minutes or so. The examination will be given by Dr. Norman Pincott. We'll get a report from Dr. Pincott following the examination. When the examination is completed, the two pilots will sit down for breakfast. They will have the usual astronaut menu of filet mignon, steak, and eggs, toast and coffee, and juice. The two pilots got up at 10:30 a.m., EST, this morning after about 9 and a half hours sleep. In the meantime, their backup pilots, Astronauts Gordon Cooper and Gene Cernan, are aboard the Gemini 12 spacecraft at complex 19. They've now been in the cockpit about two hours making the preliminary checks, and they'll be ready to report to the two prime pilots later in the countdown when they come to the pad. Also at complex 19, we're gearing up to bring in the final major part of our simultaneous countdown. That is the start of the Gemini Launch Vehicle countdown which will begin some three and a half minutes from this time. When the so-called GLV does come into the count, we'll then have some nine countdowns going simultaneously leading up to the launch of the Atlas/Agena and the Gemini 98 minutes later. At complex 14, our count is still going well with the Atlas/Agena. The crew is monitoring

the progress of the removal of the gantry service structure at this time. This is about a 30 minute operation to get the service structure back to its fallback position. Then they'll be ready to clear the pad area and start loading the oxidizer aboard the Agena second stage. This is the red-fuming nitric acid that is used with the hydrazine fuel to give us our engine burn on the Agena. All systems going well at this time. T-242 minutes, 46 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-230 minutes and counting. All still proceeding very well with Gemini 12 count at this time both at launch complex 19 with the Gemini launch vehicle and spacecraft, and at complex 14 with the Atlas/Agena, and at the crew quarters at the Kennedy Space Center, Merritt Island. The prime pilots, Jim Lovell and Buzz Aldrin, are now sitting down to their breakfast. As reported earlier, they'll have the usual astronaut fare of filet mignon, eggs, toast, coffee and juice. They have ten guests this morning for breakfast, Chief of the Astronaut Office, Alan Shepard is joining them; two of the scientist astronauts - they are Owen Garriott and Ed Gibson - and seven of the newest team of pilot astronauts who were named last April. We will give you their names rapidly here, and we'll have them available throughout the day. The seven new astronauts who are attending the breakfast are Bruce McCandless, Don Lind, Al Worden, Jack Swigert, Ron Evans, William Pogue and Vance Brand. Those are seven of the newest selected pilot astronauts. They were selected last April and they are joing the prime crew for breakfast. Meanwhile, the backup pilots, Gordon Cooper and Gene Cernan, still aboard the Gemini 12 spacecraft making their checks. All their reports coming back to the blockhouse says, good. The whole countdown, all nine elements of the simultaneous countdown, are all going very well at this time. We also have a go from the weatherman. The

prediction is for satisfactory weather here at the Cape and around the world track. Weather conditions will be satisfactory for the flight with a forecast at Cape Kennedy of partly cloudy skies, winds from the southeast at ten knots, a sea state offshore of two to three feet and an expected forecast of about 80 degrees at launch time. Weather is acceptable all throughout the rest of the world track. We are go at T-227 minutes, 45 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-221 minutes and counting. We are proceeding and all is still well with the Gemini 12 countdown at this time. While the prime pilots, Astronauts Jim Lovell and Buzz Aldrin, enjoy their breakfast at the crew quarters at the Kennedy Space Center, their backup pilots, Gordon Cooper and Gene Cernan are still hard at work at the 100 foot level at complex 19 making the preliminary checks of the Gemini 12 spacecraft. The two backup pilots are participating in a test of the spacecraft computer at this point, joined by the blockhouse a short distance from the spacecraft itself. At launch complex 14 with the Atlas/Agena, we now have the gantry service structure rolled back and the crew is making the preliminary preparations to load the acid oxidizer aboard the Agena second stage. We'll be loading some 10,000 pounds of the acid to complete the overall propellant loading of the Agena. The final phase of propellant loading for the overall vehicle will come a little later in the count with the loading of the liquid oxygen aboard the Atlas first stage. This will continue down to the final moments before the Atlas/Agena liftoff scheduled for 2:06 -- correction, 2:08 p.m., EST, this afternoon. All still going well at this point at T-219 minutes, 35 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-210 minutes and counting. T-210 and counting. All still proceeding well with the overall countdown at this time. At launch complex 14 the Launch Vehicle Test Conductor has given a go to start the loading of the acid oxidizer aboard the Agena second stage, the final phase of the propellant loading of the second stage Agena. At the crew quarters at the Kennedy Space Center, Merritt Island, the prime pilots, Astronauts Jim Lovell and Buzz Aldrin, are still enjoying their breakfast at this time and are due to depart from the crew quarters at about 35 minutes past the hour and proceed to the ready room at launch complex 16 where they will don and check out their space suits and stand by to be called to complex 19 at about the 125 minute mark in the countdown. The backup pilots, Astronauts Gordon Cooper and Gene Cernan, now have left the spacecraft at the 100-foot level of complex 19. They have been there just a little less than three hours checking out the spacecraft. The reason they leave at this point in the count is in preparation for the pressurization of the Gemini Launch Vehicle which will be coming up in about 20 minutes. We do evacuate that White Room area while we pressurize both stages of the Gemini Launch Vehicle with nitrogen and following that, the backup pilots and the White Room crew will return to the 100-foot level to make the final preparations for the arrival of astronauts Lovell and Aldrin. All still going very well with our countdown at this time, T-208 minutes, 24 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-200 minutes and counting. T-200, all still proceeding well with the simultaneous countdown for Gemini 12. We are now about an hour and five minutes away from the planned Atlas/Agena liftoff -- correction, about an hour and 45 minutes away from the Atlas/Agena liftoff which is scheduled for 2:08 p.m., EST. We are continuing to load some 10,000 pounds of the acid oxidizer aboard the Agena second stage. The report from the blockhouse at complex 14 is that the loading of the oxidizer is going well. We expect the prime pilots, Jim Lovell and Buzz Aldrin, to be departing from their crew quarters at the Kennedy Space Center in about 12 minutes from this time. They will then proceed to the ready room at complex 16 and make their final preparations for the flight and standby to be called to complex 19. All systems still going well at this point, now at T-199 minutes, mark. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 11:33 A. M. CST

This is Gemini Launch Control at T-190 minutes and counting. Just about a minute ago the prime pilots, Astronauts Jim Lovell and Buzz Aldrin, departed from their crew quarters and are now leaving the Kennedy Space Center and proceeding toward the ready room at Launch Complex 16. When they arrive at 16 they'll make their final preparations donning their suits, having final checks of both their sensors and the suit circuits themselves, then will stand by awaiting the call to the pad. They're due to depart from Complex 16 to go to their Gemini 12 spacecraft at about the 125 minute mark in the count. We mark the time of their departure as 31 minutes past the hour. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-179 minutes and counting. All still proceeding very well with our simultaneous countdown for Gemini 12. This has been the report we've had all morning. Since the count was picked up early this morning, there have been no problems in our countdown thus far. Astronauts Jim Lovell and Buzz Aldrin should be just about arriving at the ready room at complex 16 at this time. They departed their crew quarters at the Kennedy Space Center a matter of some 12 minutes ago. On their arrival at the ready room, they will get an immediate status report on the overall countdown. They will be told that the status for Gemini 12 is very good at this time. We are now about an hour and 24 minutes or so away from the Atlas/Agena liftoff, the first of the two launches planned today in the Gemini 12 mission. At launch complex 14, the control of the countdown clock has now been given to the control of the Launch Vehicle Test Conductor at pad 14. This means that the launch vehicle Test Conductor at 14 will be the one to clear any holds from this time down to the Atlas/Agena liftoff. We have a very complex countdown in operation at this time, some nine different countdowns all operating simultaneously. As a result, the so-called control of the clock is a very vital factor. It now has reverted to pad 14 where we are making our final preparations for the Atlas/Agena launch. All systems still looking good. We are at T-177 minutes, 24 seconds and counting. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 11:54 A. M. CST

This is Gemini Launch Control at T-169 minutes and counting. T-169. Our countdown continues to go very well at this time. The backup pilots, Astronauts Gordon Cooper and Gene Cernan, are now back aboard the Gemini 12 spacecraft at the 100-foot level of Complex 19. They returned to continue their spacecraft checkout after we completed the hookup of the destruct packages aboard the vehicle and pressurized the two stages of the Gemini Launch Vehicle with nitrogen. The pad area was cleared while these two activities were in process. They have been completed and the backups are now aboard making their final checks. The Flight Director, Mr. Glynn Lunney in Houston, has come aboard to make a status check. All appears to be going well as far as the overall operation, the overall simultaneous countdown for Gemini 12. The prime pilots, Astronauts Jim Lovell and Buzz Aldrin, are in the ready room at Launch Complex 16 making their final preparations. T-168 minutes and counting. This is Gemini Launch Control.

END OF TAPE

This is Mission Control Houston. We are standing now in the Gemini count at T-158 minutes and 53 seconds, and T-663 minutes and 50 seconds in the Atlas Agena launch count. Around the Manned Space Flight Network we have one minor problem with a high frequency transmitter out at the Canton Island voice remoting station in the Central Pacific. However, it is estimated this will be repaired at 12:30 p.m. CST. Meanwhile all of the recovery ships are reported to be on station waiting to support the Gemini 12 mission. An initial feet wet time or the time that the spacecraft will cross the beach at Cape Kennedy has been passed along as 45 seconds after liftoff. We'll switch now to launch control at the Cape.

This is Gemini Launch Control. At this point in the simultaneous countdown all still going well here at the Cape. In process at Launch Complex 19, the backup pilots Astronaut's Gordon Cooper and Gene Cernan still making their checks of the spacecraft and they'll standby to give a report to the Prime Pilots' Jim Lovell and Buzz Aldrin when they come aboard. At Complex 14 we are getting ready for the final phase of our propellant loading, that is, loading liquid oxygen aboard the Atlas first stage. We will actually start this about 17 minutes from this time, but we will have about a 10 minute showdown period to prepare the complete system for the extremely low temperatures

encountered with the liquid hydrogen, some 297 degrees below zero. The so called launch preps are in process at 14 now, all going well on our simultaneous countdown. T-157 minutes 10 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-149 minutes and counting. T-149 and counting, all proceeding very well with our simultaneous countdown. At Complex 14, the crew has been making final preparations to the liquid oxygen loading which will start about 8 minutes from this time. We'll be loading some 18,400 gallons of liquid oxygen aboard the Atlas first stage this afternoon to complete the overall propellant loading of the vehicle. The hydrocarbon fuel was loaded aboard the Atals first stage several days ago. All systems look good to start the liquid oxygen loading. They have just made a status check in the blockhouse and have received a "Go" to start this key sequence. We'll load the liquid oxygen aboard at a high rate, up to 95 percent level, and then continue to top it off during the remainder of the countdown, because the liquid oxygen is such a -- at such an extremely low temperature at -297 degrees. It continues to boil off as we feed it aboard the vehicle. As a result, we continue to top off the supply until the two minute and ten second mark in the countdown, when the boiloff vent closes and we should, at that point, have 100 percent supply of liquid oxygen onboard the vehicle. Also, in effect at this time is the guidance command test with the Atlas/Agena. This is a simulation of the powered flight of the Atlas/Agena vehicle. That is, the booster engine sustainer separation and ignition and performance of the Agena second stage. It is a test between the radio command guidance system and the blockhouse crew with the launch vehicle to insure that it will

respond to the radio command guidance commands during flight. We are now at T-147 minutes, 11 seconds and counting, all still going well. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 12:24 P. M. CST

This is Gemini Launch Control coming up at T-139 minutes and counting. We're now about 44 minutes away from the planned Atlas/Agena liftoff scheduled for 2:08 P. M. Eastern Standard Time. All our checkouts still going very well at Complex 14 with the Atlas/Agena and Complex 19 with the Gemini Launch Vehicle and spacecraft. At Pad 19 the backup pilots, Gordon Cooper and Gene Cernan, still aboard the spacecraft making their final checks. They'll be standing by for the prime crew, Astronauts Jim Lovell and Buzz Aldrin, when they come aboard a little later in the count probably about 15 minutes from this time. The backups will give a report to the prime pilots on the status of their spacecraft. From the way the checkout has gone, this report should be a very good one. At this point, Cooper and Cernan are participating in some final checks of the spacecraft fuel cells with the spacecraft Test Conductor in the blockhouse. At Complex 19 we have - correction, Complex 14 - we have begun the loading of the liquid oxygen supply aboard the Atlas first stage. As reported earlier, we'll be loading some 18,000 gallons of "lox" aboard today to complete the propellant loading. This lox loading sequence will go all the way down in the count to two minutes and ten seconds when the boil off valve closes and at that point we should have our 100 percent supply onboard. All systems still going well. About 12 minutes from

now, Astronauts Jim Lovell and Buzz Aldrin should get the word from the blockhouse to come from their ready room at Pad 16 to their Gemini 12 spacecraft at the 100-foot level at Complex 19. All systems still going well at 137 minutes, 20 seconds and counting. This is Gemini Launch Control.

END OF TAPE

Shepard at Launch Complex 16. The crew, Aldrin and Lovell are in the final stages of the suiting process. They will be coming out in approximately 10 minutes to go from here to Pad 19. Everything has been going smoothly so far. The boys are in excellent shape. They are particularly pleased with the launch weather which as you all can see down here is beautiful. We have heard of no problems at all on either of the two launch vehicles and as far as we are concerned the launch from this point of view will go on schedule. Do we have any questions?

QUESTION - What time did they get to bed last night and how did you (garble)

Shepard - They went to bed last night about 1:00. They were spending most of the time after dinner in the evening looking over the Flight Plan again. Once they get so throughly trained for a flight it is pretty hard to keep them away from it and any spare time they sit down and look over the checklist one more time and look over the Flight Plan one more time. There is no such thing as becoming too familiar with the Flight Plan, particularly on a detailed flight. So they went to bed about 1 and got up around 10:30 today and we resumed the countdown ever since.

QUESTION - Did they stay in their quarters all that time?

Shepard - Yes. That is correct.

END OF TAPE

This is Gemini Launch Control. We are at T-125 minutes, four seconds and counting. All still proceeding very well with the Gemini 12 simultaneous countdown at this time. We are standing by to await the departure of the prime pilots, Jim Lovell and Buzz Aldrin, from their ready room at Complex 16. They should be leaving shortly. They will come over to Launch Complex 19, go directly up to the 100 foot level and the so-called White Room where the hatches for the Gemini 12 spacecraft are located. They will be greeted among others by their backup pilots, Gordon Cooper and Gene Cernan, who will give them a final report on the status of their spacecraft. From the count, as far as the spacecraft has been concerned thus far, and as a matter of fact, the complete hardware we have at both Pads 14 and 19, all has been going well and it is expected that is the report the primes will receive. They should be departing shortly. We are now about 29 minutes away from the planned Atlas/Agena liftoff with all going well. At Complex 14, some final telemetry checks of the overall vehicle taking place. Now 124 minutes and counting. The astronauts have just come out of their ready room at Complex 16, Jim Lovell and Buzz Aldrin. They are boarding the transfer van, and in a matter of minutes, should be at the base of the pad at Complex 19. Now at T-123 minutes, 42 seconds and counting. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 12:43 P. M. CST

This is Gemini Launch Control at T-120 minutes and counting. All still going well as Astronauts Jim Lovell and Buzz Aldrin, the prime pilots, now have arrived at Complex 19 and are on their way up the elevator to the White Room. The White Room is located at the 100-foot level. After they get a quick report on the status of their spacecraft from their backup pilots, Gordon Cooper and Gene Cernan, they'll be ready to come aboard. This is due in the countdown about four and a half minutes from this time. To repeat, Astronauts Jim Lovell and Buzz Aldrin now at the Pad. We're about 24 minutes away from the planned Atlas/Agena liftoff. They have now arrived in the White Room and they are being greeted by the crewmen in the White Room at this time. They have turned in two very large tickets that were given to them as they came up the ramp at the base of the complex at Complex 19. These two tickets were admittance tickets marked Admit One and each one of them had the printing of a ferris wheel on them outlining the complete history of the Mercury and Gemini flights thus far with the names of the crewmen who participated. There is also a sign that has welcomed the crewmen in the White Room which says as follows in large block letters: "Notice: last chance, no reruns, show will close after this performance." We're now at T-118 minutes, 30 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-116 minutes 25 seconds and counting. Some 21 minutes away now from the planned Atlas/ Agena liftoff which is due to occur at 8 minutes past the hour. Just a matter of moments ago, Astronauts' Jim Lovell and Buzz Aldrin went over the hatch and are now aboard the Gemini 12 Spacecraft. Just prior to their going aboard, each was presented with a little gift by the crewmen in the White Room. Buzz Aldrin was presented with a rather king size replica of a slide rule. This partly was in tribute to the fact that he is in fact Doctor Aldrin, that is, he has a Science Doctorate. Also a tribute to the fact that he paid quite a bit of attention to even minute details during the checkout of the Gemini 12 Spacecraft. Jim Lovell was presented with a large copy of a Flight Plan indicating that there had been several changes to the Flight Plan during their final preparations while they were here at the Cape. They are now aboard,the hatches should be closed about 10 minutes - 15 minutes from this time. We will standby to see when that occurs. In the meantime at Launch Complex 14 with the Atlas/Agena all is still going well. We're in the process of the final range safety command check between the Air Force Eastern Test Range and the blockhouse and the Atlas/Agena Launch Vehicle. That is, checking that the destruct system

aboard the Atlas/Agena will be acceptable for the flight. All systems still looking good, we are now at T-114 minutes 56 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-110 minutes and counting in our overall simultaneous count. T-15 minutes away from the planned Atlas/Agena liftoff. It's due at eight minutes past the hour. All systems still going very well at both pads in the checkout of both vehicles and the Gemini 12 spacecraft. Astronauts Jim Lovell and Buzz Aldrin are now aboard the Gemini spacecraft and in the process of getting checked in and the various plugs connected. Some of the first checks they will make will be a communications check with the spacecraft Test Conductor in the blockhouse and "Stoney" the Capsule Communicator, who is one of our newest astronauts, Astronaut Stu Roosa. He spells his name, R o o s a. Following that there will be some final medical checks to ensure that we are getting satisfactory readouts from the sensors that both pilots are wearing. Meanwhile at Launch Complex 14, our countdown still continuing to go very well. We've received confirmation that two key tests during this final phase of the count has been completed. That is the Range Safety Command Test, the check of the destruct system of the vehicle, and an autopilot system check which we actually swivel those engines at the base of the Atlas vehicle in response to commands from the autopilot to ensure that they will perform properly during the powered phase of flight. All systems still looking good at 108 minutes, 34 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-105 minutes and counting. T-10 minutes and counting for the Atlas/Agena. We have just closed Buzz Aldrin's hatch and this was just followed by Jim Lovell's hatch also being closed. Both hatches are now closed and we are in the process of locking them up at the 100 foot level at Launch Complex 19. This came about 4 and one-half minutes early in the countdown, but this is the way the count has been going, excellently all day and the hatches are now closed. We will start our preliminary checkouts with the pilots. Down at Launch Complex 14, the Launch Mission Director, Merritt Preston, has just conducted a final status check of our launch readiness to fly the Atlas/Agena. All reports came back "Go" and this was the order that was given to the Launch Director at Complex 14. All systems still looking good. We are now some nine minutes away from the Atlas/Agena liftoff. It is due at eight minutes past the hour. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We are T-100 minutes and counting. T-5 minutes and counting for the Atlas/Agena. The reports are coming rather fast now from both blockhouses on the rapid series of activities taking place. Astronauts Jim Lovell and Buzz Aldrin checking in with their communications checks and giving readouts of their biomedical sensors. Meantime, at Launch Complex 14, the Agena second stage, now has gone on internal power. That is, on its own batteries, and we are starting the last -- final five minutes of the count. Some of the highlights coming down from here will be the telemetry system of the Atlas going on internal power at three minutes and 30 seconds. We close that liquid oxygen boiloff valve at two minutes and 10 seconds. This will give us our complete load of liquid oxygen aboard the vehicle. Some 18,000 gallons. Now coming up on 99 minutes and counting in about two seconds. Mark 99 minutes and counting. T-4 minutes for the Atlas/Agena. As we come up to 98, the time will be five minutes past the hour. We will attempt to count that down for you. We are now three minutes and 47 seconds away. To continue down the latter stages of the countdown over about the last minute and a half, the launch vehicle test conductor in the blockhouse has been monitoring a series of ready lights on his console. There are about 20 of them and they will turn from yellow to green as these particular final events click off. We wind up at about the 19 second mark in the count. The test conductor presses the automatic sequencer switch, and we go on automatic sequence which is

completed with the ignition sequence of the first stage of the Atlas at the 4 second mark in the countdown with liftoff at zero. Now nine seconds away from three minutes and five minutes after the hour. 4, 3, 2, 1, mark. T-3 minutes and counting. Five minutes after the hour. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control, T-2 minutes and counting. T-2, all going well as the rapid series of reports are continuing to come in from the blockhouse at Complex 14. The liquid oxygen boiloff vent valve now has been closed. We now have a launch vehicle at Complex 14 standing about 103 feet and weighing some 267 thousand pounds. Now one minute and 38 seconds away from the planned liftoff. The Launch Vehicle Test Conductor now monitoring his lights and we'll get a rapid sequence of reports as these ready lights come on. All systems still looking good. We are now one minute and 22 seconds away from the planned Agena launch. Astronauts' Jim Lovell and Buzz Aldrin standing by in their spacecraft at Launch Complex 19 for the Atlas Agena launch. At T-1 minute and 10 seconds all systems still looking good. The water for the flame bucket at Pad 14 has been turned on it will start pouring out some 30,000 gallons a minute. T-1 minute and counting. T-60 seconds and counting. All systems still looking good. The sequence still continues to command. We have an Agena ready light, we have a range safety ready light, the final ready light has just come on. T-45 seconds and counting. All systems still looking good. T-40 seconds and counting. The crew continues to monitor in the blockhouse. Recorders

are now at the fast speed. T-30 seconds and counting, T-30. All our sequent lights appear to be on, T-24 seconds and counting. T-20 seconds and counting. T-15 seconds and counting, the sequencer is in we are on an automatic sequencer at this time. T-10, 9, 8, 7, 6, 5, 4, 3, we have ignition.

We have liftoff at approximately 8 minutes and o second past the hour. Everything appears normal up to now, in the Agena launch. Flight Dynamics Officer reports everything is looking good from his standpoint. We have an official liftoff time of 7 minutes 59 seconds past the hour. Tracking plot of the Agena Launch is following quite closely to the plotboard here in Mission Control. Some 2 minutes 11 seconds after liftoff we will have the booster engine shutdown. Range Safety says that everything is green. We are 1 minute 15 seconds after liftoff here. We are approximately 13 miles in height now, downrange is 12 miles. T+1 minute 45 seconds, everything is still looking good. Twenty miles downrange. Looks good for a booster engine cutoff. BECO or booster engine cutoff has been confirmed, now the 47,000 pound thrust sustainer engine will push the Agenad to near insertion speed, where upon the Agena propulsion system will place the Agena into orbit. This Atlas Launch Vehicle was the same type of Launch Vehicle which orbited four men and one somewhat apprehensive chimpanzee named

Enqs during project Mercury. We are now at 2 minutes 50 seconds after Agena liftoff. Some 105 miles downrange, 56.6 miles altitude. We are coming up now on 50 percent of the required velocity for insertion; 143 miles downrange, 70 miles altitude. Mark, 50 percent required velocity for insertion. 179 miles downrange, 77.9 miles altitude, - 200 miles downrange. All incoming data looks good according to the Flight Dynamics Officer. 260 miles downrange, 96 miles in altitude. Four minutes 29 seconds after liftoff. Flight Dynamics advises the Flight Director that we are looking good for sustainer engine cutoff. We've had confirmation of sustainer engine cutoff. Flight Director Glynn Lunney's comment here was that this was a great Atlas. Separation of the Agena from the Atlas has been confirmed. We are now 410 miles downrange, 124.5 nautical miles in altitude. (PAUSE)
495 miles downrange, 136 miles in altitude. We have had the secondary propulsion system initiated. The primary propulsion system should ignite in a few moments. We've had confirmation of primary propulsion system ignition. Speed looks good we are now 592 miles downrange at an altitude of 147.8. We've also had confirmation that the shroud covering the docking collar in the upper end of the Agena has been separated successfully. Guidance looks good for insertion into orbit. This primary propulsion system engine has a

thrust of some 16,000 pounds. Seven minutes and 10 seconds after launch. We are now at some 75 percent of the required velocity for insertion at 756 miles downrange, 157 nautical miles altitude. 810 miles downrange. Flight Dynamics says all data coming in looks real good to him.

END OF TAPE

Eight minutes and ten seconds. 910 nautical miles downrange, 160.9 nautical miles altitude. Apparently the Agena is right down the slot on the desired azimuth and the crossrange errors are quite negligible. The intended launch azimuth of the Agena was 83.32 degrees which is slightly north of east. Coming up on Primary Propulsion System cutoff. We're now a thousand and 60 miles downrange. We've had Primary Propulsion System cutoff. Flight Dynamics Officer advises Flight Director, Glynn Lunney, that they've had a good cutoff and everything looks good. We've had the antenna boom extended on the Agena. We're now at ten minutes and six seconds after Agena launch. Apparently we've got a perfect bird here in the Agena target and we're now standing at T-84 minutes and 47 seconds in the Gemini count. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston. T-77 minutes and 58 seconds into the Gemini count and T+17 minutes and 9 seconds after Agena liftoff. All of the events in the Agena launch were on schedule and comments around the mission control room here were beautiful. Apparently it was a very perfect launch, our initial tracking data through the Antiqua station of the Eastern Test Range, show that our orbit stands with a perigee of 159 nautical miles and apogee at 163 nautical miles. We switch back now to Launch Control at the Cape.

This is Gemini Launch Control. Now at T-77 minutes, 17 seconds and counting. During this excellent performance of the Atlas/Agena during its powered flight, Astronauts Jim Lovell and Buzz Aldrin have been busy at work in the spacecraft doing some of their preliminary checks. However, they were kept abreast of the major highlights and were told that we appear to have a very good Agena in orbit for them. During this period, after the hatches were closed, the two pilots proceeded to purge the spacecraft completely to its 100 percent oxygen atmosphere and did a series of other communication tests prior to the test that they are involved in right now. Both of them, and that's a final check of the switches in the spacecraft. A complete checklist of the switches to ensure that all of them are in the proper positions. Both Lovell and Aldrin, are reporting to the spacecraft test conductor on the location of all their switches. Our countdown continues to go well with the Gemini Launch Vehicle. The primary work during these

last ten minutes or so; however, has been primarily concerned with the spacecraft and the work of Aldrin and Lovell. About ten minutes from this time, the remaining crewmen who are in the White Room at the 100 foot level will depart leaving the spacecraft area free and ready a short time thereafter to start lowering the erecter at Complex 19. All systems still going well with the Gemini countdown. T-75 minutes, 49 seconds and counting. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 1:33 P. M. CST

This is Gemini Launch Control. We're at T-70 minutes, one second and counting. All systems still going well with our Gemini countdown at this time. Astronauts Jim Lovell and Buzz Aldrin are participating in further tests with the Gemini spacecraft in the blockhouse at Complex 19. In the meantime, the crew that has helped support the two pilots during the final phases of the preparations now have cleared from the so-called White Room at the 100-foot level. Lovell and Aldrin now alone in their spacecraft aboard the 100-foot level and we are starting to gear up for the retro erector lowering which is due in about the 55 minute mark in the count some 14 minutes from now. However, with the count going very well it is possible this key event might occur a little bit earlier. We'll stand by to get further word from the blockhouse. In the meantime, the GE Burroughs Radio Command Guidance System which guided the Atlas/Agena into - the Agena - into its excellent orbit now has switched trades, if you will, back to support the Gemini Launch Vehicle. We have the same Radio Command Guidance System, the same techniques used to guide the Gemini Launch Vehicle on its powered phase of flight. Coming up shortly will be a key guidance command test with the Gemini Launch Vehicle which will simulate the complete ascent run of the launch vehicle working with the Guidance System, the two on the pad and the Launch Vehicle itself. All systems looking good. We are standing by for the next major event, which will

be word on the erector lowering. T-68 minutes, 30 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Mission Control Houston at T-62 minutes 57 seconds before Gemini lift-off. In our status of the world wide tracking network, we have one minor problem with radar system at Bermuda. However they can work the mission. Meanwhile, out at Canton Island, the high frequency transmitter apparently is not repairable in the near future. They have an estimated time of repair of 22 November. However this is not a mandatory item for the mission and will cause no problems. The Agena Target Vehicle at the present time is over the South Central portion of the continent of Africa and will come over the Carnarvon, Australia tracking station in approximately 19 minutes. We will switch now to launch control at the Cape.

This is Gemini Launch Control at the Cape. 52 minutes and counting. All systems still looking good. We have just gone through a status check at the blockhouse to determine how we stand as far as lowering the erector is concerned and all the crewmembers in the blockhouse reported they were ready for it. It is due about 5 minutes from this time. Astronauts Jim Lovell and Buzz Aldrin have been notified to expect the 138-foot erector will be coming down shortly. Just prior to this event we have opened the prevalves in the first stage of the Gemini Launch Vehicle. This permits the oxidizer or some oxidizer to flow into a stand pipe in the first stage system. The purpose of this stand pipe to

help supress possible vibrations that we could get in flight. This is the so-called "pogo" effect and this particular test has already been completed. We are now at T-61 minutes 8 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-57 minutes, 48 seconds and counting. A matter of about 30 seconds ago, we received a report from the blockhouse, that the erector was starting to move. It is in the process of now being lowered. This is done through a winch system at the complex that eases the erector down into its place for launch. This will take about eight minutes. The astronauts were appraised of it just prior to the first move of the erecter and we are still in a "Go" condition as far as the mission is concerned at this time. We are now aiming for a liftoff time for the Gemini Launch Vehicle -- that is a liftoff time of 46 minutes and 30 seconds after the hour. That is at 3:46 and 30 seconds, the Gemini liftoff. This should give us a hold time at the T-3 minute mark of about three minutes and 27 seconds. Once again, to repeat the planned launch time, 3:46 and 30 seconds p.m., EST. We are now at T-56 minutes, 43 seconds, as the erecter continues to come down. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 1:54 P. M. CST

This is Mission Control Houston. We're now at T-48 minutes, 57 seconds and counting on the Gemini count. Meanwhile, the Agena target vehicle is some 46 minutes and 13 seconds en route. It will come over the Carnarvon, Australia tracking station in approximately four minutes from now. Apparently, everything looks, still looks real good with the Agena target vehicle. For the progress of the Gemini count we switch now to Launch Control at the Cape.

Gemini Launch Control at the Cape. We're now at T-48 minutes 22 seconds and counting. All still proceeding very well with the Gemini countdown. Astronauts Jim Lovell and Buzz Aldrin still making final checks in the spacecraft. They will start making some preparations shortly for a static test of the spacecraft Propulsion System which will come about 15 minutes or so from this time. In the blockhouse itself the crew continues to monitor various major functions particularly concerned with guidance at this point but all is still going well. We also have reaffirmation of a go from the weatherman with a weather forecast here at the Cape of partly cloudy conditions, winds from the southeast at ten knots and an offshore sea state at the Cape of about two to three feet and an expected temperature of about 80 degrees. All systems still going well. T-47 minutes, 29 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-41 minutes and counting, T-41. We are still proceeding and we still have a good countdown at this time. The backup pilots' for Gemini 12, Astronauts' Gordon Cooper and Gene Cernan, now that they have left Complex 19 are here in the Mission Control Center where they will monitor the rest of the countdown and the early stages of actual flight. At Complex 19 itself the count still going well. Coming up shortly will be the programmed sequence test, one of the final checks of the primary and secondary flight controls for both the spacecraft and the Gemini Launch Vehicle. Also tied in on the test will be the crewmen in the blockhouse. During this test we actually do swivel or gimbal those engines in the Gemini Launch Vehicle in response to commands from the Guidance System. The astronauts are getting up in the spacecraft for a static test of the spacecraft propulsion system, where we actually fire the small thrusters on the spacecraft. That will be coming up about 15 minutes from this time, but they are going through some preliminary work in preparation for it at this point. We are now at T-39 minutes 50 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Mission Control, Houston. At T-34 minutes and 57 seconds in the Gemini 12 count. Meanwhile, the Agena target vehicle, now over the Carnarvon, Australia tracking station, has been in flight one hour and 16 seconds. The weather picture around the world shows that it is pretty well satisfactory for the first couple of days of the Gemini 12 mission. Across the Atlantic, during the first pass, we'll encounter extensive cloudiness and showers between the latitudes 50 and 60 degrees. In the mid-Pacific landing zone, northeast of Honolulu, the skies are partly cloudy and winds east 15 knots and seas 4 to 5 feet. In the west Pacific landing zone southwest of Tokyo, partly cloudy skies, winds northeast at 10 knots and seas 3 feet. The Eastern Atlantic landing zone, which is some 300 miles west of the Cape Verde Islands, partly cloudy skies, winds are out of the northeast at 15 to 20 knots, and seas 4 to 5 feet. In the primary landing zone in the western Atlantic, which is some 300 miles east of Miami, partly cloudy skies, winds north to northeast at 15 to 20 knots, seas are running 4 to 6 feet with heavy swells. At T-33 minutes, 25 seconds, let's switch now to Launch Control at the Cape.

This is Gemini Launch Control. And our checkout continues at Complex 19, still going well as it has all this afternoon and all this morning.since the count actually picked up. There have been no problems thus far in the general countdown or specifically with

the Gemini spacecraft itself. Just as we passed the 35 minute mark in the countdown, the master operations control system came into play. This is the automatic sequencer at Complex 19. However, it is not fully automatic until we get down to the T-5 mark in the count. From T-5 minutes down, it does become a complete, automatic sequence on the final checkout and leading up to the ignition of the Gemini Launch Vehicle. Prior to that time, the sequencer commands some 10 actions and monitors the performance of some 25 other functions as we continue to countdown. In the Gemini 12 spacecraft, Astronauts Jim Lovell and Buzz Aldrin continue to make their preparations for the so-called static fire of the spacecraft propulsion system. That is the orbit attitude maneuvering system which is used to power the spacecraft in orbit. We have some eight 25-pound thrusters that ring the adapter section of the spacecraft and we will test them in a matter of some five or ten minutes from this time. We are a little bit ahead on our countdown in certain activities at this time, mainly because the count has been going so well. Now at T-31 minutes, 49 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. T-28 minutes and counting. T-28. Our propulsion test with the Gemini spacecraft is in progress at Launch Complex 19. We are testing the small 25 pound thrusters that ring the adapter section of the Gemini spacecraft. We tested out - test out these thrusters in the modes in which they would operate in orbit. Those are the modes that are used to maneuver the spacecraft in orbit. The sequence goes as follows: We apply yaw left, pitch down, yaw right, pitch up, yaw left. This is a good test of these thrusters. The test is in progress at this time. It is being monitored by Astronaut Jim Lovell and Buzz Aldrin in the spacecraft and the crew in the blockhouse. In the meantime, with the Gemini Launch Vehicle itself, we are making one of the final checks, the malfunction detection system of the vehicle itself. All is going well with the test at this time. Now coming up on T-27 minutes and counting. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, NOVEMBER 11, 1966, 2:23 pm CST
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This is Gemini Launch Control, T-20 minutes and counting, T-20. All still going well at this point. We have completed our testing of the Orbit Attitude Maneuvering System, the propulsion system of the Gemini 12 Spacecraft and it appears to be very satisfactory. In the meantime the Flight Director Mr. Glynn Lunney has informed the Cape of the time he wants the Gemini Launch Vehicle to ignite. That is T-0 in the countdown and the time he gave is 46 minutes and 30 seconds after the hour. We will get liftoff about 3.2 seconds or so after we get the ignition. So our liftoff will be 3 seconds after 46 - 30 seconds after the hour, which will mean a hold time at the T-3 minute mark in the count of about 3 and one-half minutes. To repeat, we will have a built in hold at the T-3 minute mark in the count. The duration of the hold about 3-1/2 minutes. Aiming at an ignition time or T-0 of the Gemini Launch Vehicle at 46 minutes and 30 seconds after the hour. Our window in which to launch, that is, to make a third or fourth revolution rendezvous will end at 48 minutes and 53 seconds after the hour. So our complete window goes from 46 minutes and 30 seconds after the hour to 48 minutes and 53 seconds after the hour. Our checks are continuing in the blockhouse at Complex 19, they all appear to still be going well at this time. Now at T-18 minutes 24 seconds and counting. This is Gemini Launch Control.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 2:29 P. M. CST

This is Gemini Launch Control, T-14 minutes and counting. T-14. With the Agena spacecraft in orbit now just travelling over the earth south of Hawaii, we are continuing our count here at Complex 19. All systems still are go. The Launch Vehicle Test Conductors just made a status check with all the various recovery elements, the recovery forces that are in the immediate Cape area, and these Department of Defense forces primarily all report that they are ready for the mission. Coming up will be a data link test of the Guidance System of the Gemini Launch Vehicle. This is between the ground guidance and the vehicle itself. We also have the launch vehicle Test Conductor confirm that we will have a built in hold at the T-3 minute mark in the count. The exact time of the hold coincided with the launch will be three minutes and 29 seconds. The countdown then will be resumed. We'll be aiming for a T-0 or ignition of the Gemini Launch Vehicle at 46 minutes and 30 seconds after the hour. Liftoff will come about three seconds thereafter. Now T-12 minutes, 50 seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-9 minutes and counting. T-9 and all aspects of the mission still looking good at this time. The Agena 12 spacecraft in orbit now southeast of Hawaii as it starts to make its approach to the west coast of the United States. Our latest ephemeral data, that is the apogee and perigee of the Agena spacecraft gives us the following numbers: an orbit of 163.6 by 159 nautical miles. Repeat: 163.6 by 159 nautical miles. A period of 90.48 minutes, 90.48 minutes. And the Agena has an inertial velocity of 17 294 statute miles per hour. This data will be applied here at the Cape and from the computers in Houston to give us the proper numbers for the guidance system, the Gemini Launch Vehicle and the spacecraft computer. The final update will come just after we resume our countdown after the 3-minute hold. Under this launch plan we will be launching on a flight azimuth of 100.6 degrees. At this point in the countdown, all still going well. Astronauts Jim Lovell and Buzz Aldrin has been advised to close in and lock their visors. They have reported this is complete. The spacecraft test conductor informed them that they were all set and wished them a good flight. Both pilots expressed their thanks. We are now at T-7 minutes 26 seconds and counting. We will have a built-in hold, a planned built-in hold at the 3 minute mark in the hold. We will hold for 3 minutes and 29 seconds in order coincide our launch with the now orbiting Agena. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control at T-6 minutes and counting. All systems still going well. We'll be coming up in about three minutes into our builtin hold. A major highlight occurring at the blockhouse at this time, a final status check of all aspects of the mission. The crewmen are now reporting back "Go" as their various systems are called out. All systems still functioning normally at this time. The Gemini 12 spacecraft now is on complete internal power. About two minutes ago it went on the power of its fuel cell system within the spacecraft itself. The final go will be given by Mission Director Bill Schneider and his turn will be the last one after he hears a report from all the other elements. A status report is still in effect at this time and all are reporting go. Now T-5 minutes, eight seconds and counting. This is Gemini Launch Control.

END OF TAPE

This is Gemini Launch Control. We are about to go into our hold, just a second away. Mark. T-3 minutes and holding. T-3 minutes and holding. This hold will last three minutes and 29 seconds. We'll resume our countdown at 43 minutes and 30 seconds after the hour aiming for a T-0 or ignition of the Gemini Launch Vehicle at 46 minutes and 30 seconds after the hour. This will coincide our launch with the orbiting Agena spacecraft in order to help us to accomplish the planned third revolution rendezvous between the Gemini 12 spacecraft with Astronauts Jim Lovell and Buzz Aldrin and the orbiting Agena. We are now in the hold and the crew in the blockhouse as well as the crew in Houston are monitoring the various systems. All systems are still go at this time. Holding at T-3 minutes, this is Gemini Launch Control.

END OF TAPE

This is Gemini launch control....we are about to resume our countdown...mark T-3 minutes and counting T-3. We are on a complete automatic sequence at launch complex 19 at this time. Astronauts Jim Lovell and "Buzz" Aldrin have made final communications checks. We have also received a clearance from Air Force Eastern Test range to launch. As reported earlier we'll be launching on a flight azmith of 100 point 6 degrees. T-2 minutes 35 seconds and counting. This is Gemini Launch Control.

END OF TAPE

Gemini Launch Control at T-2 minutes and counting, T-2. All systems still go with the Gemini Launch Vehicle and spacecraft at this time. The Launch Vehicle and the spacecraft have received the proper updates, that is, the proper parameters for flight. These were the final versions fed to the Launch Vehicle and spacecraft just after we resumed our countdown on the T-3. Coming up at this point in just a matter of seconds from now, the Launch Vehicle will go on complete internal power. That is it's own battery power. Our countdown will continue down automatically to the zero mark when those two engines in the first stage will ignite, when they build up some 77 percent thrust the vehicle will be released for flight. They'll have a total of some 430,000 pounds of thrust with the Launch Vehicle on the pad. Now at T-1 minute and 9 seconds and counting. Another key test during the final phases that was just completed was a test - a final test of those engines in the Guidance System, and as we actually gimbaled those engines a final test of swinging them to insure they responded to the Guidance System. Now coming up on 50 seconds, MARK T-50 seconds and counting. The crew in the blockhouse now monitoring their consoles during these final phases. All reports come back good at T-40 seconds and counting. T-35, the prevalve has been opened

to permit the propellants to come down toward the chamber. There is only one valve which will open at zero. T-25 seconds and counting. T-20 T-15 seconds and counting. It is quite in the blockhouse as we continue to monitor at 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0. We have ignition.

And we have liftoff. Liftoff is approximately 46 minutes 36 seconds past the hour. The roll program has gone in which twist the Launch Vehicle over to a launch azimuth of approximately 100.6 degrees. The clocks are in sync, now the pitch program has begun. This will pitch the vehicle over to horizontal flight in a gradual manner to put it into a launch window of some 87 nautical miles high. Let's eavesdrop now on the air to ground conversation between the crew of Gemini 12 and the Flight Controllers on the ground.

HOU Mark, 50 seconds.

SC Ready to go.

HOU Roger, roger. You are looking good.

SC Houston, 12. Pressure holding at 5.75.

HOU Roger

Plot looks real good here in Mission Control. We are approximately 7 miles downrange and 10 miles in altitude.

HOU Mark, 1 plus 40.

SC 02

HOU Roger

Flight Dynamics says all data looks good on the Gemini 12 launch. Mission Control is go for staging.

SC All systems go for staging.

HOU Roger you are go for staging on the ground. Staging will occur at 2 plus 30.

SC DCS updated

HOU Roger, DCS

SC (garbled)

Initial steering on the second stage of the Gemini Launch Vehicle looks good. A perfect staging.

HOU You got good second stage thrust 12.

SC Roger.

Flight Dynamics says it is right down the middle.

SC Houston that delta p lights out now.

HOU Roger. You are steering right down the (garble)

SC Man this is a pretty good visual simulation here.

HOU How do you like that?

We are now some 193 miles downrange at an altitude of 70.4 nautical miles. Flight Director Glynn Lunney is polling the various positions here in the Mission Control Center. Everybody says go.

SC Houston, Gemini 12 (garbled)

HOU Roger, you are go here on the ground.

The plots in the - the trajectory plotboards on the front of Mission Control here are following almost on the money. Even better than simulations. Coming up on point 8, that is, when 80 percent of the required velocity for insertion ....

HOU Standby for point 8, 12.

SC Roger

HOU Mark, point 8.

SC Roger.

Coming up on second stage engine cutoff.

SC SECO

HOU Roger, ~~SECO.~~

HOU Roger, 12, you are go for IVAR

SC (garbled) 704

HOU You are go.

SC (garbled) 00032

HOU Roger.

SC Address 94, we used plus 00014

HOU Copy

We are now at 6 minutes 44 seconds after liftoff.

SC Bearing (garbled) 28 forward, 8 left.

HOU Roger understand 24 forward, 8 left. Is that correct?

SC 28 forward.

HOU 28 forward, roger copy.

The reference to 28 feet per second forward refers to the so called IVAR, or Insertion Velocity Adjustment Routine. Wherein the crew of the spacecraft will tune up the orbit after a second stage engine cutoff to take out any small under speed quantities in the launch vehicle. IVAR is another one of the many acronyms in the space business. However, these acronyms are quite accurate and make for a very concise conversation on the air to ground loops and other conversations here in the Control Center. We are now at 7 minutes 53 seconds after liftoff.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/11/66, 2:55 P. M. CST

HOU 12, Houston. Nominal one bravo.

S/C Roger, Houston.

Not much conversation between Gemini 12 and the ground at the present time. We're waiting for initial measurements on the Gemini 12's orbit. All the data incoming to Mission Control looks very good. This is Gemini Control Houston at nine minutes 48 seconds after liftoff.

HOU 12, Houston. You're in a 87 by 152.

12, Houston. You're in a 87 by 152.

Now one minute to LOS.

We're coming up on Loss of Signal at the Antigua station in the Eastern Test Range. As you heard on the air-to-ground the present measurements of the Gemini 12 orbit is 87 nautical miles perigee with a 152 nautical mile apogee. This is Mission Control at 11 minutes, 7 seconds after liftoff.

END OF TAPE

This is Mission Control Houston, 13 minutes 59 seconds after lift-off. Gemini 12 is well on its way into its 4-day mission the last of the Gemini Program. The official lift-off time was 46 minutes 33 seconds past the hour. We will now play back the taped voice communication between the Flight crew and the ground controllers during the launch phase.

10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1

ignition. Lift-off.

S/C Roll program.

FLIGHT Roger, roll.

S/C Pitch program.

FLIGHT Roger, the pitch. (PAUSE) Mark 50 seconds.

S/C ...

FLIGHT Roger, roger, you are looking good.

S/C This is 12 here. Gemini pressure holding 5.75....

FLIGHT Roger. 204633. Mark 1 plus 40.

S/C Mode 2.

FLIGHT Roger.

S/C ...

FLIGHT Roger.

S/C 12. Go for staging.

FLIGHT Roger, you are go for staging on the ground.

S/C DCS update in.

FLIGHT Roger, DCS.

S/C Okay.

FLIGHT You are looking good here 12.

S/C Lights... Gemini needles are going out nicely.

FLIGHT Roger. You got good second stage thrust off.

S/C Roger. All of them. Houston that delta P light is out now.

FLIGHT Roger, copy. You are steering right down the pipe.

S/C Man, this is a pretty good visual simulation.

FLLGHT How do you like that?

S/C ...

FLIGHT Roger, you are go here on the ground.

This is Mission Control Houston. We are now at 19 minutes 31 minutes after lift-off in the Mission of Gemini 12. We are standing by now for our acquisition at the Ascension Island tracking station in the South Atlantic. This will be a voice remoted conversation, that is, if there is any conversation between the crew of Gemini 12 and the spacecraft communicator, Pete Conrad, here in the Control Center.

No conversation as yet. We are still standing by. Pete Conrad is putting in call now. Let's listen in.

FLIGHT Gemini 12, Houston.

Gemini 12, Houston Cap Com. Over.

Gemini 12, Houston.

FLIGHT Gemini 12, Houston.

No response as yet from the crew of Gemini 12. But we will stand by.

FLIGHT Gemini 12, Houston. Gemini 12, Gemini 12. Houston on UHF. Over.

We have only got 3 minutes left in this pass over the Ascention station. Pete Conrad meanwhile, periodically puts in calls to Gemini 12. We are still standing by for any response.

FLIGHT 12, Houston. Give me a call on UHF-2 if you are reading me. Gemini 12 Houston.

END OF TAPE

HOU Gemini 12, Houston.

This is Mission Control again. Apparently, the contact between the spacecraft through the Ascension station is unsuccessful over VHF or UHF. We're one minute, a little less than one minute, to Loss of Signal at Ascension. Perhaps we'll be more successful through the Tananarive station later on. This will come at 34 minutes past the hour. Among the guests watching the liftoff from Mission Control here in the viewing room were the following: Ambassador Llewelyn Thompson who is Ambassador Designate to the Soviet Union, Ambassador George V. Allen, Director of the Foreign Service Institute, and a number of other State Department officials. At T plus 25 minutes, 32 seconds this is Mission Control.

END OF TAPE

This is Mission Control, Houston, at 34 minutes and 3 seconds after liftoff. At about this time, we should be acquiring the spacecraft from the Tananarive voice remoting station on the island of Madagascar. We are standing by now for any air-to-ground conversation between the crew of Gemini 12 and Pete Conrad here in Mission Control Houston.

HOU Tananarive, Houston.

Tananarive, Houston.

TAN Houston, Tananarive, go ahead.

HOU Tananarive, Houston. Go remote UHF.

TAN Roger. Tananarive, remote.

HOU Gemini 12, Gemini 12, Houston Cap Com through Tananarive, go reentry antenna, how do you read?

S/C This is 12. Read you loud and clear, now, Houston over.

HOU Roger. Did you have a comp problem or was it us?

S/C We didn't locate any problem here. Over Ascension, we tried -- we thought you were broadcasting, but we couldn't hear a thing.

HOU Okay, well we had a low pass at Ascension. Are you ready to copy your NC-1?

S/C Roger, ready to copy. We are on reentry antenna right now. We first heard your transmission on adapter antenna. Do you want us to stay in reentry?

HOU Yes, let me get the NC-1 to you and then we'll play with your radios.

S/C Go ahead, ready to copy.

HOU Roger. NC-1 - 49 + 40, Delta V - 66.6, Delta T - 1 + 28, yaw - zero, pitch - zero. Address 25 - 00666; address 26 - address 27 - all zeros. Thrusters aft,-maneuver posigrade.

S/C Roger, got it. Do you want to repeat GETB? ... + 40, Delta V - 66.6 feet per second, time = 1 + 28 seconds, yaw zero, pitch zero, address 25 - 00666, ...

HOU Okay that burn time was 49 + 40, I didn't get your copy, but I think you have it right.

S/C Roger, time = 49 + 40.

HOU Roger, your orbit is 87 by 146.

S/C Roger, understand the orbit ... by 146.

HOU Okay, now go back to adapter antenna there and give me a call please.

S/C Houston, Gemini 12 on the adapter antenna, do you read?

HOU Okay, I read you loud and clear. I think our problem was you low pass at Ascension. You can remain on adapter antenna and how's everything going?

S/C Roger, one small anomoly on the liftoff. Our secondary number two engine when we went up to about ... 5000.

HOU Okay.

S/C Can't we go on up to a higher level during the high G?

HOU I didn't copy that, would you say it again please?

S/C ...(garbled)

HOU You are breaking up pretty badly. You can pass it to Carnarvon.

CRO Yeah, Gene. That's secondary O_2 is closed and the other secondary O_2 is open for a flight burn.

HOU Okay.

This is Mission Control Houston. Apparently there will be no more con -- no further conversation between the Mission Control here and the crew of Gemini 12 through the Tananarive station. The numbers you heard being passed to the crew were for the first translation maneuver, the so-called phase adjust maneuver, which will occur at 49 minutes, 40 seconds after liftoff, which will be approximately one minute from now. As you were -- ten minutes from now. This will be a 66.6 feet per second posigrade burn. It will raise the perigee from the present 87 nautical miles to 119 nautical miles. For each two feet of energy added to an orbit, the orbit will be changed 180 degrees around by approximately one mile, from where the maneuver was made. At 40 minutes and 13 seconds after liftoff, this is Mission Control Houston.

END OF TAPE

This is Mission Control Houston 49 minutes 53 seconds after liftoff. The spacecraft is now in electronic contact with the Carnarvon Australia tracking station and the spacecraft communicator at Carnarvon has confirmed that they have begun the first translation burn for the later rendezvous with the Agena target vehicle. We are standing by for some conversation. The telemetry to the ground has indicated that the burn is now under way. This will be the 66.6 feet per second posigrade burn using the after firing thrusters on the Gemini space craft. Carnarvon has reported C-band track. We'll stand by to go live when we have direct conversation between the spacecraft communicator and the crew of Gemini XII. As of now there has been no attempt to call the spacecraft. Data from the tracking at Carnarvon has begun filter in to the Control Center here in Houston. We are still standing by for the spacecraft communication communicator at Carnarvon to put in a call to the spacecraft. Apparently they don't want to begin conversation while the crew is making this first burn. Again, this is the first phase adjustment maneuver to get the rate of closure between the Gemini XII spacecraft and the Agena target vehicle in to their proper relationship. The next maneuver is at approximately one hours and 44 minutes after liftoff, the so-called corrective combination maneuver. Carnarvon spacecraft communicator has just raised the crew let's join the conversation...

CRO Okay standing by for your go for 15 dash 1.

S/C Roger Gemini XII

CRO Go ahead...

S/C Would you report mark command at apparently our time?

CRO Okay, we'll do that.

S/C Gemini XII we'll go

CRO Roger, radiator is "go"...all systems are "go" here on the ground. You're go for 15 dash 1 Alpha. I give you mark GET. at 54 minutes.

S/C Roger.

CRO 5 4 3 2 1 mark..this is 54 minutes.

S/C Roger (garbled)

CRO Say again 12.

S/C Roger, do you have some information on an out-of-plane burn?

CRO That's affirmative. You are "go" for your onboard solution for the plane change.

S/C Roger

CRO Okay, would you give me a PQI please.

S/C Roger PQI reading 85 percent.

CRO Roger.

HOU Carnarvon Flight. Gemini main OBC...., please. Carnarvon from flight.. Gemini main OBC please. Carnarvon from flight...

CRO Go ahead flight Carnarvon..

HOU Did you copy that send us a couple of Gemini mains and some OBCs....

HOU Carnarvon from flight...Did you copy?

This is Mission Control Houston again. Spacecraft Gemini 12 is still over the Carnarvon, Australia tracking station but the conversation on air to ground is relatively quiet now. You heard the PQI readout propellant quantity remaining. They now have 85 percent of their onboard thruster propellant still in the tanks. Since it is rather quiet pass here, this first pass over Carnarvon station we'll switch now to the Press Conference at Cape Kennedy. At 56 minutes 40 seconds after liftoff.....

END OF TAPE

This is Mission Control Houston. One hour, 18 minutes and 20 seconds after liftoff in the flight of Gemini 12. At the present time the spacecraft is over the Hawaii tracking station. Earlier, it was reported that the Carnarvon, Australia pass was completely nominal from all standpoints, systems, and crew. A few figures here on heartbeat rates. At one minute after liftoff the command pilot rates ranged between 120 and 126 beats per minute, and on the pilot, they ranged from 82 to 110. Earlier in this pass over Hawaii, the crew reported that there were no leftover numbers or residuals on their out-of-plane burn. In other words, they burned it right down to the zero point on their inertial velocity indicators. We have the tape of the early portion of this pass over Hawaii which we will roll now.

S/C Hawaii, Gemini 12. Just completed the out-of-plane burn and the residuals are nulled.

HAW Roger, thank you. We are going to start an accelerometer bias/check at this time.

S/C Roger, understand. We are in prelaunch.

HAW Roger, thank you.

S/C Hawaii, this is 12. We are in the process of rotating back to zero, zero, zero. We are going to have to stop the rotation here shortly.

HAW Roger. As soon as you get the zero down, would you let me know and we'll start the accelerometer bias check at that time?

S/C Roger.

Roger, go ahead.

HAW Roger, 12.

S/C Hawaii, 12.

HAW 12, Hawaii.

S/C Roger. How much longer will this check go?

HAW We are just about to complete it here.

HOU After your next summary, we're satisfied, Hawaii.

HAW 12, Hawaii. That completes the accelerometer bias check.

S/C Roger, thank you. We're still yawing up somewhat.

HAW Roger.

We're showing him rolled over to about -- looks like 60 degrees and pitched up to about 50 degrees there.

HOU Roger.

HAW And for the yawing, he's correcting it now.

HOU Rog.

HAW 12, Hawaii. One minute to our LOS.

S/C Roger, Hawaii.

HOU And we'd like a Gemini LOS main please, Hawaii.

HAW Wilcox.

Looks like we've had LOS of the Agena.

HOU Roger.

HAW And we have a breakup with Gemini.

HOU Roger.

HAW Cryo O_2 tank pressure is going down, its right around 700 or maybe slightly under. They may have neglected to turn the heater on.

HOU Okay, we'll take a look at that when we come up.

HAW Roger.

This is Mission Control Houston. That winds up the pass over Hawaii station. In approximately two minutes, we'll start the first stateside pass over the -- starting with the California station and going down through the stations in the Eastern Test Range. At one hour, 24 minutes and 7 seconds after liftoff, this is Mission Control.

END OF TAPE

This is Mission Control Houston. Spacecraft Gemini 12 has come in contact with the Mission Control Center here through the California station. Let's join that conversation now. Standing by for further conversation between Gemini 12 and the ground.

Guymas remote, California local.

CAL California is local

This is Mission Control again. Let us back track a bit for the first portion of the stateside pass and get the first 40 seconds of contact between the California station and Gemini 12.

HOU ..... 002 pressure and we're standing by. We'll pass you the maneuvers when we get them.

SC Roger. Thank you, we're reading 550 on cryo 002 we'll ..... We have a solid lock on now, first range we're able to read out after the accelerometer bias was 235.52 miles.

HOU Roger. Looks like the radar meets respect.

SC I guess so.

HOU 12, Houston, you're accelerometers require no update. Everything looks good.

SC 12, roger.

That completes the first portion of this pass. We're standing

by for further communications between Pete Conrad here in Mission Control and Gemini 12.

This is one of the quietest first stateside passes in any mission we've had in quite some time. We're still standing by for conversation between Pete Conrad and the crew of Gemini 12.

Still standing by. Apparently the crew is involved with some onboard computations for some of their later maneuvers toward rendezvous with the Agena Target Vehicle. Pete Conrad said he is a little hesitant to talk to them at the present time but they are still standing by though. Before the state-side pass is completed we should have some additional conversation.

Texas remote, Guaymas local.

TEX Texas remote

GYM Guaymas local.

HOU 12, Houston.

SC Go ahead Houston, 12 here.

HOU Roger would you turn your ATM off.

SC Roger.

HOU Thank you.

HOU 12, Houston

SC This is 12 go.

HOU Roger. Your cutoff will be 16 percent.

SC Roger, 16 percent to cutoff and

we're standing by for our CSI and CDH updates.

HOU Roger, she's coming to us now. We'll be right with you.

Texas local.

END OF TAPE

HOU 12 Houston

S/C 12 "go"

HOU Roger, I have CSI ready for you.

S/C Ready to copy.

HOU Roger. GETB 01 + 47 + 52 Delta V, 7 point 6 Burn time Delta T 00 + 10 Yaw 10 right P pitch 27 up address 2500067 address 2690035 address 27 90011 thrusters aft posigrade up south:

S/C zero Y at zero one plus 47 plus 52 Delta V 7 point 6, duration 00 + 10 Yaw 10 right pitch 27 up, 25 is 00067, 26 is 90035, 27 is 90011, aft....

HOU Roger, that's a charlie on that posigrade up and south.

Roger and I have CDH for you if you are ready to copy.

S/C Roger, go ahead with CDH.

HOU Roger, GETB 02 + 22 + 54, Delta V 49.9 Delta T 01 + 06 Yaw 1 right pitch 4 up address 25 00498 address 26 90035 Address 27 90007 thrusters aft maneuver is posigrade up south

S/C Roger, Houston. CDH at 02 + 22 + 54 Delta V 49.9; durations 01 + 06; yaw 1 right 4 up; 25 is 00498, 26 is 90035;27 is 90007 thrusters

HOU Roger that's charlie.

12 Houston. 12 Houston.

S/C Houston 12, go ahead

HOU Roger, the temperature is going up on your frog eggs if you can get to the thermal cover without interferring would you put it on, please?

S/C Roger.

HOU Thank you. And 12 this is Houston, Could you give us a report on your left and right windows please.

12 Houston. Could you give us a report on your windows when you have a chance please.

S/C Roger,Pete...We got smudging.....staging still there adjusted the covers...the windows aren't bad though right now they are pretty good.

HOU Okay, thank you.

S/C Frog eggs are tucked in nicely.

HOU Thank you.

12 Houston. We have about one minute to LOS Your Delta H looks like 10 miles.

S/C Roger. Understand a 10 mile Delta H.

HOU Roger standing by.

END OF TAPE

This is Mission Control Houston. One hour, 47 minutes and 11 seconds after liftoff. Apparently we've had loss of signal at the Antigua station of the Eastern Test Range. Our next station coming up will be the Ascension Island station at one hour, 52 minutes after liftoff. This is a voice remoting station through Houston. We'll stand by for any possible conversation through this station. This is Mission Control Houston, out.

END OF TAPE

This is Mission Control Houston one hour 52 minutes 58 seconds after lift-off of Gemini 12. We are standing by for acquisition by the Ascension Island station, voice remoted through Control here in Houston. There will not likely be too much conversation. Spacecraft communicator, Pete Conrad, just put in a call saying he is standing by. The conversation will likely consist of a report by the crew of Gemini 12 that their last maneuver. Let's join that conversation now and stand by.

FLIGHT Gemini 12, Gemini 12, Houston standing by through Ascension.

S/C ...

FLIGHT Say again 12.

Gemini 12, Houston.

S/C This is 12, go ahead.

FLIGHT Roger, would you check your Agena control power circuit breaker and see if it is in the on position, please?

S/C ...

FLIGHT Say again, it is on, is that correct?

S/C ...

FLIGHT Could you say it again, slowly. You are broken up a little.

This is Mission Control Houston again. Apparently that is the extent of the conversation between Houston and the spacecraft Gemini 12 through the Ascension station. We are coming up on the Tananarive voice remoting station, which will occur in approximately 9 minutes. Pete Conrad just advised of the crew through the Ascension station that they have one minute until LOS. However, that likely will be the extent of the conversation. At 2 hours 33 seconds after lift-off, this is Mission Control Houston.

END OF TAPE

This is Gemini Control at two hours, nine minutes, 23 seconds after liftoff. At the present time we are waiting acquisition by the Tananarive voice remoting station. Tananarive does have acquisition at this time. There likely will not be too much conversation between Houston through the Tananarive station with the crew of Gemini 12. They're coming up in approximately 13 minutes on the coelliptical maneuver which will be 49.9 feet per second in a posigrade direction. Let's switch now to live air-to-ground.

HOU Roger

While we're waiting for further conversation between Pete Conrad here in Mission Control and the crew of Gemini 12, the translation maneuver or making the orbit coelliptical with that of the Agena, will take place at two hours, 22 minutes and 54 seconds after liftoff. The purpose of this maneuver is to raise the perigee to some 150 nautical miles. This in turn will place it in - the spacecraft - in an orbit of some ten miles lower than the Agena, and at this time will be trailing the Agena by some 60 nautical miles. We're still standing by for any further conversation from Houston through Tananarive to the spacecraft Gemini 12.

(PAUSE)

HOU Gemini 12, Houston. One minute to LOS, standing by.

S/C Roger, Houston.

S/C Houston, Gemini 12. We've got visual contact through the sextant at an access of 85 miles.

HOU Roger, 12, copy.

This is Mission Control Houston. We're coming up on - I think we have had Loss of Signal at the Tananarive voice remoting station. That was very sparse conversation but apparently the crew is very busy in calculating their next maneuvers for the rendezvous. The next station to acquire will be Carnarvon at two hours, 25 minutes after liftoff which will be approximately nine minutes from now. At two hours, 17 minutes and two seconds after liftoff this is Gemini Control.

END OF TAPE

This is Mission Control Houston at 2 hours, 25 minutes, and 3 seconds after liftoff. We've just had acquisition by the Carnarvon, Australia tracking station and we'll stand by now to join that conversation as it happens.

S/C ..00495.

CRO Okay, copy. We'd like a PQI also.

S/C Roger, PQI this time is reading 75 percent.

CRO Seventy-five, roger.

HOU Carnarvon from Flight.

CRO Go ahead, flight, Carnarvon.

HOU Did you read his 25, 26, and 27?

CRO Roger, 25 - 00495, 26 - 90065, 27 - 90001.

HOU Copy, thank you.

CRO Rog.

CRO Carnarvon has C-band track.

HOU Roger.

Could we have a Gemini main, please?

CRO Roger.

HOU And OVC's every 60 seconds.

CRO Roger, we're trying to do that. We're getting intermittent PCM-1 sync.

HOU Okay.

CRO No valid data yet. Radiators look go.

HOU Rog.

We still have some four minutes and 20 seconds of this Carnarvon pass remaining. We'll standby.

S/C We received our lock on our radar lockon at about 64 miles. Our radar powered circuit breaker is on. And we don't seem to be able to get anything on the encoder.

CRO Roger, stand by. Okay, we show you locked on here on the ground. We show you also at nav mode rather than rendezvous.

S/C We're on the nav mode. We're waiting to be sure we have a lockon.

CRO Okay. The Agena's receiving you evidently he's getting no indication of that.

S/C We're getting fluctuation in the analog ...(garbled)

HOU Carnarvon from flight.

CRO Go ahead.

HOU Do you want to read back what he said there? I'm having a hard time reading him.

CRO Yeah. Okay, he said the -- he's lost radar lock at about 64 miles.

HOU Got that.

CRO And he's trying to maintain lock again or get lock again, but he can't seem to get it. It is fluctuating a little bit, but we're receiving an L-band coder lockout down on the ground.

HOU Did he say his power circuit breaker was stopped?

CRO He says its closed, its okay.

HOU Closed, okay.

CRO We show that the Agena is receiving him. But there's nothing going back to the spacecraft, evidently. We've got a good RF power level/output indicating the transponder is okay also.

HOU Say again.

CRO I say the RF power level looks good.

HOU Okay.

CRO And that indicates the transponder is okay.

HOU Yes. As far as you can tell.

CRO Rog.

HOU Carnarvon, would you send us an Alpha summary please?

CRO Roger.

Gemini or Agena?

HOU Gemini.

CRO Rog.

HOU Carnarvon, flight.

CRO Go ahead.

HOU How does the AC look? Frequency? And voltage?

CRO Stand by.

Four minutes to LOS. How are you doing?

S/C Roger, still no lockon. We are getting a fluctuation on the analog still. It's going

back and forth, but we haven't had any lockon.

CRO Okay.

S/C Other than that, everything's okay.

CRO AC voltage is okay, flight.

HOU Roger.

And we need a contigency EZ on the Agena.

CRO Roger.

[illegible] This is Mission Control Houston again. At 2 hours, 32 minutes and 3 seconds, we've had loss of signal at Carnarvon, Australia tracking station. The spacecraft will be acquired by Hawaii at 2 hours, 49 minutes after liftoff, which will be some 15 minutes from now. We are still about an hour from the velocity match maneuver which essentially means rendezvous. This is when the spacecraft will match the velocity of the Agena and then move in quite slowly at some one to two feet per second for station-keeping and subsequent rendezvous or docking I should say. At 2 hours, 32 minutes, 44 seconds after liftoff, this is Mission Control Houston.

END OF TAPE

This is Mission Control Houston 2 hours 49 minutes and 55 seconds after liftoff. We're coming over the Hawaii station with both spacecraft at the present time. And waiting for contact between the spacecraft communicator at Hawaii with the crew of Gemini XII. At the present time the so-called co-elipticity, that is the average distance between the spacecraft Gemini XII and the Agena Target Vehicle ranges in altitude variation between 9.4 miles to 10.0 miles, which is .6 of a mile out of perfectly circular. Let's switch now to live air to ground and see what is said.

AFD Hawaii Cap Com AFD

HAW Go ahead AFD

HOU Okay, when you get your message they forgot to amperes GETB so please read up the GETB.

HAW GETB, okay. Let me see we need GETB..yeah we need to read up the whole works up here is that right?

HOU AFD away..

HAW GT 12 this is HAW, we have TM solid on you.

S/C Roger Hawaii, wish we had LOS solid on the Agena.

HAW You still having negative luck with all of that, huh?

S/C Posi..we're proceeding with a radar failure.

HAW Okay, if you have the opportunity at the present time to try some commands to see if you command

capability.

S/C Roger, go ahead.

HAW Okay, what we would like for you to do is give us SDP dim and break that's command 211 and 201.

S/C When you're ready go. Mark. Negative MAP light.

HAW Okay we have the function.

S/C Okay would you give us 201.

HAW Roger, sending 201. Mark.

S/C Negative MAP light.

HAW Roger, we have MAP on the ground. We also have (faded out) We're showing that command capability is working fine here on the ground.

S/C Roger, are you showing that we do have the dipole selected?

HAW That is affirmative. We do have the dipole selected.

S/C .....try a spiral

HAW Yeah, go ahead give it a try.

S/C Well, it doesn't look like that one was too good. That didn't help out too much.

HAW Okay, go ahead and go back to dipole. Your commands are going through fine.

S/C Yeah, we're getting a more steady lock on when we are on the spiral it looks like.

HAW Okay, stand by and I'll see what they want to do.

Whether they want to stay on spiral or dipole
Is he getting range and range rate?

S/C Dipole is the best right here.

HAW Still not getting any range information right?

S/C Well, it is intermittent. Let's see, right now I've got the latest one it's 34.58 miles.

HAW 34 point 58 is that right?

S/C Roger. That agrees approximately with our angle. Our angle is about 16 degrees, we've got visual on it now both to the sextant and the optical sight.

HAW Okay. Go ahead flight.

HOU We're just copying.

S/C Our angle is going to be a little bit later than nominal on that TPI.

HAW Okay.

HOU Frank, lower your set.
Hawaii from flight.

HAW Go flight

HOU You better read them up that TPI backup, GETB and the forward up down right and range and range rate.

HAW Rog. XII I have your TPI backup information when you are ready to copy.

S/C Ready to copy, go ahead.

HAW Okay, GETB 30551; Delta T 026, Delta V 22.8 forward Delta T 010; Delta V 3.2 up; Delta T

0.08; Delta V 2.7 right. Okay, your range will be 24.7 miles range rate 95 feet per second, at point charlie.

S/C Roger, understand GET a burn 30551; 22.8 forward 3.2 up; 2.7 right, range at point C is 2.47 95 feet per second.

HAW Roger. Okay, we've completed a tape on that. Would like to have some more information on your co-elipticity.

S/C Go ahead.

HAW Okay, it will be at 9 point 4 nautical miles to 10 point zero nautical miles and that will be almost at TPI or at time 3:04:27. 10 zero will be at that time.

S/C Roger, understand. What will be at TPI?

HAW 10 zero

S/C That's the 10 zero.

HAW Roger understand. The apogee would be at TPI.

S/C That's affirmative.

HOU HAW from flight

HAW Go flight

HOU The data is showing that the computer is accepting the radar data, how does it look to them now?

HAW It's okay, the information we're getting here on the ground is showing that the computer is accepting the radar data, how does it look to you now?

HOU Data is looking fairly reasonable are you showing a steady pass now...gotta go now remote.

HAW Think it's worth a try.

Flight?

HOU Less than a minute now.

Hawaii will have LOS in less than a minute now.

HAW Roger. What do you think about all that flight?

HOU Say again.

HAW Rog. He isn't really sure up there, he is standing by to see whether we should go in a rendezvous mode or stay in NAV.

HOU You're about 30 seconds to LOS.

HAW I don't think we have enough to know that it is working so we better stay in NAV.

HOU Okay, flight recommends that you stay in Nav. with it.

S/C Roger, we agree.

HOU Okay. I don't know we may have a little contact going here.

HAW We've had LOS with Gemini, flight.

This is mission control Houston, at 2 hours 58 minutes 31 seconds after liftoff. We have had LOS at the Hawaii tracking station. And within the minute we should have first contact through the California station which will be voice remoted from Pete Conrad here in Mission Control. And the second stateside pass of this mission. We're standing by for this first contact. Spacecraft Gemini 12 is nearing the end of its second revolution in this

four day mission. The last in the Gemini series. California is getting geared up to begin the reception and transmission with the spacecraft. We are standing by for acquisition of signal. Let's join the conversation now through the California station. The.....

END OF TAPE

HOU Let's join the conversation now through the California station. See how well it is operating and see if it will be of any help to you during your braking period.

S/C Roger.

(dead air)

HOU Guaymas remote - California local.

GYM Guaymas is remote.

CALIF California is local.

We are standing by here in Mission Control for additional conversation. Coming up on the terminal phase initiation at three hours and five minutes elapsed time which is approximately three minutes from now. This will be some 23.1 feet per second posigrade along the line of sight toward the Agena target vehicle. The spacecraft should be trailing the Agena by about 20 miles. The crew will make this maneuver when the Agena is at some 26.8 degrees elevation angle. We are still standing by here for additional conversation between the ground. Hopefully we will hear the actual burn and their comments about the thrusting.

HOU Texas remote - Guaymas local.

TEX Texas remote.

GYM Guaymas is local.

S/C Don't want to give any significant lock-up.

HOU Roger. Have you burned TPI.

S/C Sure, TPI was an on-board burn of 22 forward and 3 up was burned at .. when did you burn three up Buzz. Burned at 2 + 05 + 48.

HOU Okay, 12 say again, you burned 22 forward, did you burn the three up or not.

S/C Negative.

HOU Okay, you burned 22 forward, no out-of-plane and nothing up at 03:05:48 is that correct.

S/C This is 12, we burned 22 forward.

HOU Okay.

END OF TAPE

This is Mission Control Houston. Fairly silent stateside pass. We're still standing by for additional conversation. You heard the readouts of the last maneuver, the terminal phase initiation, 22 feet per second forward and an elapsed time of three hours, five minutes, 48 seconds. The crew apparently is still having intermittent lock on with the radar. They went briefly to the spiral antenna and are now back to the adapter antenna. However, the ground stations are getting confirmation of radar commands and so on. We're standing by for any additional conversation from the ground. We'll continue to monitor air-to-ground.

HOU 12, this is Houston.

S/C Go ahead Houston.

HOU As best as we can tell on the ground, it is updating correctly, oh, within eight seconds every once in awhile then to 40 seconds and I don't know what you're reading in the cockpit, but it doesn't look too good on the ground.

S/C Houston, first correction is two up.

HOU Roger, first correction two up.

S/C And Houston, we're getting no range rate or range analog at all.

HOU Okay, you getting anything out of the computer?

S/C Occasionally intermittent whenever we get a lock.

HOU Okay, and would you turn the encoder off, please,

we want to update the Agena.

S/C Roger.

S/C .....angle..... 393.

HOU Say again, 12.

S/C 29.51.....range rate.

HOU You're very intermittent, 12. Would you repeat?

S/C garbled

S/C We're now getting good radar data.

HOU You say you're getting good radar data?

S/C Affirmative. We're now getting good radar data.

HOU Okay. We were in the process of switching stations there and we couldn't read you too well.

S/C Okay, eight seconds to ...stand by for a midpoint angle... You might have known it, there's not a star in the sky up here. You still have inertial needles, don't we, Buzz?

HOU 12, this is Houston. You can put the encoder back on and you are transmitting UHF on intercom there.

S/C Roger. Roger, we're on VOX. Tell us if we're coming through clear enough.

HOU Okay, you're coming through. And would you leave the encoder off, please?

S/C Encoder's off.

HOU Thank you.

ANT Antigua AOS.

S/C Okay, we want three degrees at a minute and a half.

S/C That looks pretty good. Acq lights are showing up good.

S/C Range is coming in now on the analog but that range rate is lousy.

S/C Yes. Still nothing on the range rate here.

S/C Angle track is out of this world. Three seconds to reading.

S/C ...like she might be drifting.

S/C a little fast, huh?

S/C Got the stars now?

S/C ... drifting light?

S/C Thank you.

S/C I have a new star...66. Stand by for pitch.

S/C On my mark.359. 346. Okay, run three up.

S/C That's it now?

S/C That's right.

S/C That looked pretty good on the plot there. A little outside.

S/C You'llknow for sure when the range is valid.

S/C .... field of radar.

S/C Field of radar?

HOU	12, Houston. We show you're getting a little solider on the radar.
S/C	Roger, Houston. We are - range looks like it might be pretty good. Range rate is lousy.
HOU	Rog.
S/C	Ten seconds to reading.
S/C	Roger.
S/C	Now check the yaw on it this time, Jim.
S/C	Okay, rog. 31.
S/C	Range is 8.36.
S/C	Very good.
S/C	Yaw is 3591.....stand out very nicely. Got a star path out there now.
S/C	Good.
S/C	Got a range rate of 79.
S/C	Very good.
S/C	Sure is a bright acq light.
HOU	12, Houston. One minute to LOS. You can go encoder on.
S/C	Roger.
HOU	Have fun.
S/C	Okay, fifteen seconds to our midpoint.
S/C	Will be 70, 7.3, 74 feet per second. Range rate is okay now.
S/C	Range rate looks.....

This is Mission Control Houston at three hours, 21 minutes, 34 seconds after liftoff. We've had loss of signal at the - over the Eastern Test Range. We'll have acquisition by the Ascension Island station within about nine minutes. We'll stand by to come back on the air with any conversation with Houston through Ascension. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston, 3 hours 29 minutes and 4 seconds after Gemini 12 liftoff. We are waiting now the acquisition of signal at the Ascension Island tracking station and conversation between the spacecraft communicator Pete Conrad here in Mission Control and the crew of Gemini 12. The actual rendezvous in this mission will occur at - during the pass over the Tananarive voice remoting station and we'll have a brief gap between the Ascension station and the acquisition at Tananarive. We will bring you the conversations over both of these stations as they occur. Let's standby now and wait for Pete Conrad to give the crew a call through the Ascension station.

HOU Gemini 12, Gemini 12,Houston standing by at Ascension.

SC (garbled) 2-1/2 degree burn.

HOU Gemini 12, Houston standing by through Ascension.

SC Roger Houston.

SC 6 feet per second (garbled) (garbled)
OK you can thank us we have brains. (garbled)
Need some space for them. (garbled)

This is Mission Control Houston again. The quality of the transmission through the Ascension station is so poor that we'll drop off of this pass and pick it up again over Tananarive and

hopefully it will be a little better quality at that time and we should be approaching rendezvous while over the Tananarive station. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston, at three hours, 45 seconds after lift-off. We are now in contact with Gemini 12 through the Tananarive voice remoting station. Actually they should have completed their velocity match or breaking maneuver at this time. The docking itself will take place over the Indian Ocean prior to acquisition by the tracking ship Coastal Sentry which is South of Japan. Let's join the present conversation between spacecraft communicator Pete Conrad and Gemini Spacecraft.

HOU Gemini 12, Houston. Would you go to "push to talk" please.

S/C Hold it a minute Houston.

Okay, I got it finished now.

HOU Gemini 12, Houston, would you go to "push to talk" please.

HOU Gemini 12, Houston is standing by at Tananarive.

S/C Okay, ... (garble)

HOU Say again 12.

S/C Starting to roll around a bit. (garble) (broken transmission).

Hey, I think the old, I think (garble).....

Whew, what a burn.

HOU 12, Houston, would you go to "push to talk" please.

S/C (Broken transmission)

HOU 12, Houston, Do you read.

S/C Man, that baby is bright.

Alright, now let's see, let's get around to

see where we are going ... straight up aren't we. .... (garble) dark side any more.

HOU Gemini 12, Houston

S/C .... and the time....

HOU Gemini 12, Houston. Do you read.

S/C ... forward. Okay.

HOU Gemini 12, Houston

S/C .... time ... (garble).

HOU Gemini 12, Houston.

HOU Gemini 12, Gemini 12, Houston

S/C I still don't know what they ask about. ..... the Agena.

HOU 12, Houston.

HOU Gemini 12, Houston

HOU Gemini 12, Gemini 12, Houston

S/C Go ahead, pull around so I can see what the lights look like.

HOU Gemini 12, Houston

S/C 12,.... was lousy.... (broken)

HOU Gemini 12, Houston

S/C Gemini 12.

HOU Go to "Push to talk" will you and you are GO for docking.

S/C (garble)

HOU 12, this is Houston, one minute to LOS, you are GO for docking.

This is Mission Control Houston. As you heard the crew of Gemini 12 are in the so called "locks mode" on their transmitter, that is, the intercom is tied into the transmitter so that when they talk, they are actually transmitting to the ground. However, this prevented the spacecraft communicator here in Mission Control from reaching them. We will standby for the acquisition by the tracking ship Coastal Sentry for a word on the actual docking which should take place over the Indian Ocean within the next few moments. This is Mission Control Houston at 3 hours, 53 minutes, 49 seconds after liftoff.

END OF TAPE

This is Mission Control Houston at 4 hours 9 minutes and 3 seconds after lift-off. Spacecraft Gemini 12 and the Agena still undocked. Are now passing over the tracking ship Coastal Sentry, south of Japan. Let's join in on that conversation now.

HOU CSQ, what percentage on PQI 57?

CSQ Say again, Flight.

HOU What is the PQI readout - was that 5 - 7

CSQ 7

HOU 6 - 7

CSQ 7

HOU Great. Is he docked, CSQ?

CSQ That is negative, Flight.

HOU Okay, are you satisfied with the Agena?

CSQ Both vehicles are go.

HOU Okay, let him know that.

CSQ Okay. Gemini 12, CSQ.

S/C Roger, CSQ.

CSQ We are giving you a go for docking.

S/C Roger, thank you.

CSQ And I want to send you a TX. Do you want to place your TM switch to command and your

CSQ adapter C-band to command?

S/C TM to command, adapter C-band command.

CSQ Stand by for your fuel cell purge.

S/C Roger.

HOU CSQ, Flight.

CSQ Go ahead, Flight.

HOU Let me know when he docks.

CSQ Roger.

HOU And would you send us a Gemini main, please.

CSQ Gemini main.

HOU Roger.

CSQ Okay. Flight, CSQ.

HOU Go ahead.

CSQ We show the Agena in pitch, yaw rates high and we think that should be low. Rate low rather than rate high.

HOU That is correct, CSQ, it ought to be low, but why don't we just wait until we get docked there.

CSQ Roger. Flight, CSQ.

HOU Stand by.

S/C CSQ, this is 12.

CSQ Go ahead.

S/C We are docked.

CSQ Roger. Did you copy Flight?

HOU Roger.

CSQ Would you give me a cryo O_2 and H3?

S/C Roger.

CSQ Okay, would you give me an .... reading on page 2?

S/C Roger....now and the pressure is reading 550.

CSQ How about O_2?

S/C O_2 reads 97 percent and we are exactly ... psi I will pump it up a little.

CSQ Roger, and 1 minute until LOS.

S/C Roger.

CSQ You can turn your encoder back on.

S/C Roger.

This is Mission Control Houston. We have had loss of signal of Gemini 12 from the tracking ship Coastal Sentry. The actual time of docking was at a ground elapsed time of 4 hour 13 minutes and 53 seconds. The next station to acquire will be the Hawaii station at a ground elapsed time of 4 hours 25 seconds - 25 minutes which will be approximately 9 minutes from now at T+4 hours 16 minutes and 16 seconds, this is Mission Control Houston.

END OF TAPE

This is Mission Control Houston at 4 hours 25 minutes and 53 seconds after liftoff on the Gemini 12 mission. We're standing by for acquisition of Gemini 12 Spacecraft - apparently still docked with the Agena, over the Hawaii tracking station. There should be a certain amount of conversation between the Spacecraft Communicator at Hawaii and the crew of Gemini 12. The Spacecraft Communicator is putting in a call now, let's join that conversation.

HAW Mighty fine, you're looking good from down here. Have you completed gyrocompassing?

SC Roger have completed gyrocompassing, we are now BEF, Agena 000.

HAW Roger, very good.
We have one question, we had LOS at CSQ before you had completed your purge, how did the rest of the purge go?

SC Roger, purge appeared to be normal in all respects.

HAW Roger, very good.
Flight looks like computer is still on should I remind him that it's scheduled to go off about this time?

HOU Say again Hawaii.

HAW Roger, the computer is still on should I remind him that it is scheduled to go to the prelaunch and then off at about this time.

HOU Just mention to him that the computer is still on.

HAW OK.

12, Hawaii. We're showing that the computer is still on.

SC Roger, computer coming off at this time.

HAW Roger.

SC We'd like to leave it on for the undocking here and then we'll turn it off right after that.

HAW Roger, you broke up there for a few seconds will you say again?

SC Roger, we'd ~~like~~ to leave the computer on until we've completed the undocking which we are going to start right away and then we'll turn the computer off.

HAW Roger, very good.

AFD Hawaii Cap Com, AFD, how is the tape dump going?

HAW It is in process at the present time, we have good solid TM should be no problem with it though.

AFD Roger

HAW Tape dump is completed.

HOU Roger.

HAW 12, Hawaii.. We show that you are undocked at present.

SC Roger Hawaii, we are sitting out about 2 feet away from the vehicle.

HAW Roger.

SC Hawaii this is 12. Please inform the people that the loop on the Agena tether is deployed and looking good.

HAW Roger.

HOU Houston, copy.

HAW 12, Hawaii will have LOS in about one minute.

SC Roger Hawaii.

HAW Hawaii has had LOS of both vehicles.

This is Mission Control Houston. We've had loss of signal from both the Agena Target Vehicle and the Gemini Spacecraft at the Hawaii tracking station. However, we've got something like one minute or less till acquisition by the California station from which Pete Conrad will talk to the crew. The spacecraft is nearing the end of its third revolution. During this state-side pass Pete Conrad will discuss with the crew a suspected problem in the Agena primary propulsion system. Apparently there was some erratic data during the insertion burn of the Agena. However, this is being - this data is being looked at very closely by Air Force and Contractor personnel and the

decision as to what modifications will be necessary will come up after these discussions. Let's join now the conversation between Pete Conrad and the crew during the stateside pass.

HOU .....turn your X-ray on when you are ready.

SC Roger will do.

END OF TAPE

Just prior to joining the conversation here between the Mission Control Center and the Gemini 12, the report was received from the crew that they are now undocked. There are several dockings and undockings by both crew members during this period of the mission. We'll stand by now for further communications between spacecraft communicator "Pete" Conrad who tonight is wearing his cap presented him aboard the Wasp at the conclusion of Gemini XI. The blue cap with the "scrambled eggs" on the brim and the Gemini XI "Pete" insignia on it. We're standing by for further conversation.

CONRAD You letting "Buzz" fly that thing now?

S/C What say Houston?

CONRAD I said, you letting "Buzz" fly that thing now?

S/C Yes, we're all having plenty of opportunities. He hasn't used up his share of the fuel yet.

CONRAD Yeah, watch him, he's a time hog.

S/C I'm seeing that. We're right around to the tail end of the Agena now, looking right up the engine.

CONRAD You can really put that thing where you want to can't you.

S/C Roger and did you get the word about the Agena tether. It's solid and waving in the breeze.

CONRAD Yeah, we got the word.

HOU Guaymas remote California local.

GYM Guaymas remote

Calif	California local
HOU	12 Houston
S/C	Go ahead Houston.
CONRAD	We seem to have a little problem with the frog egg experiment and they would like the pilot to reach up there and "jiggle" the electrical connector to the box while we're looking at you.
S/C	Roger, will do. We'll "jiggle" the electrical connector.
CONRAD	Thank you.
S/C	Just getting a chance to do some flying.
CONRAD	Say again.
S/C	I just had a chance to do some flying.
CONRAD	Sorry about that.
S/C	What electrical connection did you have in mind.
CONRAD	The one that goes in to the back of the box.
S/C	Okay, it's being pushed and pulled.
CONRAD	Okay.
FD	Texas remote Guaymas local
HOU	Texas remote
GYM	Guaymas local
HOU	12 Houston
S/C	Go ahead
Conrad	Roger, Jim, we have seen an anomaly in the PPS engine when it was being burned into orbit and

we're still going over the data right now. And the problem appears to be one that indicates possible turbine pump trouble and we're going to give you a "go" a little bit later whether you can make the PPS burn or not. We'll keep you advised and we're still looking at the data right now.

S/C — Roger, understand a problem in the turbine right now....until you want us to go later on.

Conrad — That's affirmative.
12 this is Houston we have about one minute to LOS, you got anything?

S/C — Negative Houston, we're coming in to position now.

CONRAD — Okay this is the last time we'll talk to you through the states, Have Fun.

S/C — Roger, thank you for your cooperation.

CONRAD — You're welcome. And 12 this Houston you can turn your quantity.....(faded out)

END OF TAPE

HOU 12, this is Houston, you can turn your quantity - cryo quantity switch to OFF now.

S/C Roger, thank you Houston, has my wife had that baby yet.

HOU Yea, I think so, it was during some flight. I talked to both of them and they are extremely pleased with your rendezvous.

S/C Who turned the radar off.

HOU Joe Shea said he didn't.

S/C Tough luck.

This is Mission Control Houston. That winds up the Stateside pass on this third revolution. The spacecraft will begin its fourth revolution in a few moments as it crosses the longitude of Cape Kennedy. There will be a very low elevation angle pass over the tracking station Rose Knot which is hove to off the West coast of South America. The pass will only last some three minutes and thirty-two seconds, We will standby for any conversation during that pass. At 4 hours, 47 minutes and 33 seconds after liftoff, this is Mission Control Houston.

END OF TAPE.

RKV RKV...

HOU Roger.

RKV We show them as being spacecraft free.

TM is breaking up pretty bad.

AFD, RKV.

AFD Go ahead.

RKV Okay, our TM doesn't look very good at all.

AFD Roger.

RKV Our TM completely out of contact with him.

AFD Roger, you can forget about the tape dump, then.

RKV Roger. Gemini 12, RKV. Gemini 12, RKV.

S/C Gemini, RKV.

RKV Okay, we are having a little bit of trouble locking up on your TM. I will give you some information while I have got you though.

I would like to confirm that your X-ray is on.

Do you copy?

S/C ...RKV.

RKV Gemini 12, RKV. Did you copy?

Gemini 12, transmit in the blind. I would like to confirm that you have the X-ray in the on position...and I would like to advise you that the experiment time for Mike 408 is nominal.

RKV We have LOS minus 1 Gemini 12.

S/C Roger, stand by. We are having a little trouble with the control.

RKV RKV, Flight. He has pitch and roll high, excessive ...fuel high. He reports he is having a little bit of control trouble. We have not had real good telemetry as yet on Gemini.

HOU Roger.

RKV He is configured FC-1 000.

HOU Copy. His problem was in roll?

RKV Pitch and roll are still high. We have LOS Agena.

HOU Roger.

...07 cryo O_2 tank pressure is reading 674 psi.

HOU Roger. Send us an LOS main?

RKV Roger roger.

HOU And would you give us a read back on what the crew said to you, as for their control problem.

RKV Roger, all he reported was that he was having control problems and never did get good contact with me and we never did get good telemetry.

HOU Roger, copy.

RKV AFD, RKV.

HOU Go ahead, RKV.

RKV They were undocked. Spacecraft free and rigid.

HOU Roger, understand. Can you make a tape playback on that conversation and send us in verbatim what they said?

RKV Roger, will do.

HOU Roger. RKV Cap Com. AFD.

RKV AFD, RKV.

HOU Roger, send us a Gemini Alpha.

RKV Roger. On its way.

HOU Roger. RKV, Flight.

RKV Flight RKV.

HOU Were they undocked your whole pass?

RKV That is affirmative, Flight, undocked the whole pass. I believe the only comment they made at all and this is the only transmission I have from them that they were having a slight control problem.

HOU Okay, and what did you see on the ground.

RKV Okay, we show the spacecraft to be free and the cone was rigid. The vehicle was within deadbands. Pitch horizon sensors were off-scale high, roll horizon sensors were off-scale high and the position was within the deadband on the Agena.

HOU You said pitch and roll horizon sensors were off-scale high, but that you were within deadbands?

RKV That is affirmative. And it looks like we have some pretty healthy heart rates.

HOU Say again.

RKV It looks like we have some pretty healthy heart rates. Copy?

HOU Yes,.but you were still within deadbands?

RKV That is affirm. That was according to the position gyros.

HOU Say again.

RKV That was according to the position gyros.

HOU Okay, let me come back to you RKV.

END OF TAPE

This is Mission Control, Houston, at 5 hours 20 minutes 50 seconds after liftoff. Spacecraft Gemini 12 at the present time, is over the Tananarive remoting station. Let's cut in now and join the conversation.

S/C Secondary roll gyro. Got it back again and we've docked here towards the end of the night. We've only got about 4 minutes of M-408 experiment which we're doing now and we've just completed that will be it.

HOU Roger, did you confirm that you had a primary rate gyro problem or what?

S/C No, we didn't. We set back the primary rate gyro. What we might have done, in the night docking was to steer the Agena since we were not in the regional position but was actually rotating around, and we had to let it tap itself out for awhile and then we came back in.

HOU Okay, you were in FC-1, huh?

S/C Yes, I confirm FC-1 and it looks like a slight disturbance with that Agena if we don't get docked because of the radar.

HOU I see. Could you give us a PQI reading and also would you check you're cryo O2 pressure please.

S/C Cryo O2 is reading about 660 PSI and the PQI is reading about 56 percent. We're a little low and

contemplating forgetting about the second docking practice to save fuel.

HOU Roger, we concur. Are you satisfied with your control system now?

S/C Roger, it appears that our control system is adequate at this time. We're not too sure. We're still in the flight path and occassionally disturb the Agena. We're trying to fly with the Agena and it makes us feel like we might have had a control valve.

HOU Okay.

S/C Houston, 12

HOU Go ahead. Go ahead 12, this is Houston. Gemini 12, this is Houston, go ahead.

S/C Roger, Houston, we are contemplating another docking just to try our control system again. The Agena doesn't seem to be maintaining its position to accurately, and we noticed that in the daylight. It moved about 40 degrees off .

HOU Okay. Are you still in flight control mode 1?

S/C Roger, we are in flight control mode 1.

HOU 12, this is Houston. Gemini 12, Houston.

S/C Go ahead, Houston.

HOU Roger, Jim, when it gets off like that in FC-1, it doesn't come back very fast, why don't you go to FC-2 and gyro compass to your head and set up the commands

to gyro compass in FC-2 to what you want?

S/C — That sounds like a pretty good idea.

HOU — 12, this is Houston. Have you been using rate command for your station keepings and dockings, or did you do them at pulse or what?

S/C — This is 12. We've been using pulse and on our final docking maneuver we went to rate command. That's when we thought we had the discrepancy. While we were undocking and trying to figure out what was wrong, we went to rate command to see what the situation was.

HOU — Okay. When you undock, are you using your maneuver thrusters to undock with?

S/C — That's affirmative.

HOU — Okay. Listen, we found that if you undock, don't touch anything, just send the undock command and the TDA will shove you out, and you don't have to use any control at all. You can just set it in rate command, and hit "undock", and it will push you out just fine. You may be disturbed at FC-1 with your forward firing thrusters.

S/C — Roger. We read you.

HOU — 12, this is Houston.

S/C — Go ahead.

HOU Why don't you go ahead and gyro compass in FC-2 and see if that's doing the job for you and that you get it all back to where it should be.

S/C Roger, will do.

HOU And then, you can go ahead and do your undocking again if you feel that you have the fuel and I recommend that if you do it this time, when you send the undock command, just let the TDA push you out. You don't need to fire the forward-firing thrusters to back out of there.

S/C Roger.

HOU What we'd like you to do when you undock, is do it over the CSQ, which will be your next station. Just back on out to assure yourself that your control systems are okay and then you can go back and redock.

S/C Roger.

HOU Gemini 12, Houston.

S/C Go ahead Houston.

HOU We have one minute to LOS, and before you undock, we will give you GO for that over the CSQ. We'd like to look at you a little bit.

S/C Roger. Take a look at the Agena too.

HOU Yes, that is what we're doing. I think if you'd been backing out using your forward firing thrusters in FC-1, you might upset the Agena.

TAN Tananarive, LOS

This is Mission Control, Houston. 5 hours 29 minutes and 30 seconds

after liftoff. We've had loss of signal at the Tananarive remoting station. The next station to acquire the spacecraft will be the tracking ship, Coastal Sentry. And at ground elapsed time of 5 hours 42 minutes. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston 5 hours 41 minutes and 59 seconds after liftoff. We're momentarily expecting contact with the tracking ship Coastal Sentry and we'll stand by here to listen in on that conversation at it occurrs. Still got a few seconds yet to acquisition. The spacecraft is still docked with the Agena Target Vehicle and during this pass over the CSQ there will do an undocking and run some tests on the control systems of both the spacecrafts. They have acquisition aid contact from the CSQ at this time. They have solid telemetry both vehicles from the CSQ. Still standing by here for voice communication between the CSQ and spacecraft Gemini XII. Both vehicles are "go" on the ground, there's still no voice communications. We're standing by for the communications between the CSQ and the spacecraft Gemini 12.

S/C Come in CSQ

CSQ Go ahead.

S/C Roger, you're right the sensors on the Agena are in high gate

CSQ Roger.

S/C That's low gate flight not high gate, low, low gate.

CSQ Okay .

S/C Gemini 12 CSQ
This is low CSQ

CSQ Roger. Both vehicles look good. We would like to go ahead and undock and like to do it slowly.

S/C Roger, be informed that 44 and 30, we just got on two fuel cells Delta P light

HOU Roger.

S/C What's your onboard pressure now?

HOU Well, let's solve that one first. CSQ.

CSQ Roger.

HOU How do the fuel cells look to you?

CSQ We're looking at them right now.

HOU Would you send us a summary please Gemini soon.

CSQ Roger, we'll send you another main.

S/C CSQ this is 12 do you want us to undock over your station.

CSQ Let's take a look at these Delta P lights first.

S/C Okay

HOU Does it look alright to you CSQ?

This is flight CSQ....come in CSQ

CSQ Come in flight go ahead

HOU Okay, the O_2 and H_2 pressure differential is okay. We can't tell the O2 to water.

CSQ Okay, do you have any bi-levels ?

S/C That's affirmative.

CSQ What are they saying?

S/C They're both on.

CSQ Which ones?

S/C That's Baker Baker 03 and Baker Baker 04

HOU	Okay , CSQ can you verify unit 2 SPS temps
	Baker 271
S/C	Roger
CSQ	PCM counts
S/C	CSQ Gemini XII
CSQ	Go ahead XII
S/C	Roger, the fuel cell Delta P just went up
	No change in the Delta P area
CSQ	What was it?
S/C	That was it.
CSQ	Roger, both H2s are reading about point 55 and
	H_2O readings are both one to two or about 2.1
	point 15.
HOU	Roger
CSQ	Roger, copy.
HOU	Affirmative.
HOU	CSQ flight
CSQ	Go ahead flight. Proceed with the undocking
	and take a look at the control system.
HOU	Baker 271 reads 88
	88
CSQ	Agena PCM count.
HOU	Roger, and CSQ we need another Gemini main.
CSQ	Roger.
HOU	Bill, did you tell them to go ahead with the
	undocking in the control system.

CSQ Roger, I've got something here I don't quite understand flight. Give me a chance about 30 seconds or so.

Flight CSQ

HOU Go ahead

CSQ Okay, I've got indications that all the attitude maneuver thrusters, I've got the vent lights on in all cases maneuver and attitude thrusters.

HOU Then that means the power switch is off doesn't it?

CSQ Roger.

HOU Okay, let's get this undocking under way so we can get an evaluation at you or at Hawaii.

CSQ Okay, you going to do it at Hawaii.

HOU No, have them go ahead and do it and see how it looks to them.

CSQ Okay. 12 CSQ

S/C CSQ 12

CSQ Go ahead and undock.

S/C Roger.

HOU How does it look CSQ?

CSQ He's still docked.

HOU 30 seconds to LOS Gemini 12

S/C Roger, we're doing this as fast as we can.

CSQ Flight CSQ

HOU Go ahead

CSQ	You want to hold off this undocking until Hawaii?
HOU	Yes, let's hold it off.
CSQ	12 this is CSQ
S/C	This is 12 Bill
CSQ	Let's hold off on the undocking until you get to Hawaii.
S/C	Roger, we're holding off till Hawaii.

END OF TAPE

This is Mission Control Houston at 6 hours 1 minute and 13 seconds after lift-off. We are approaching now the Hawaii tracking station. We should acquire in the next few seconds. Meanwhile, the decision has been made here in Mission Control to omit the primary propulsion system burn of the Agena target vehicle which would boost the combined vehicles to an apogee of some 400 nautical miles. The earlier mentioned problem with the engine turbo pump is apparently of enough concern to where it has been decided not to continue with this portion of the flight plan. The secondary propulsion system unit 2 of the secondary propulsion system will be used at a ground elapsed time of approximately 7 hours 5 minutes, in retrograde, some 54 feet per second delta V. This will place the spacecraft in proper phasing for the solar eclipse Sunday morning. However the hatches will remain closed during this experiment or during the eclipse and there will be no ultraviolet photography possible. Let's join the Hawaii-to-spacecraft Gemini 12 conversation at this time.

S/C Roger, be informed that while we are under Agena control flight control mode 1, that we have actually rolled about 15 degrees during this pass between CSQ and Hawaii.

HOU Roger, Okay.

S/C Roger, we will commence with the undocking.

HOU Okay. Hawaii, Flight.

HAW Go Flight.

HOU He said he rolled 15 degrees in flight control mode 1.

HAW We concur on the ground here too.

HOU Does he think it is an Agena problem? Did he have the OAMS off?

HAW Yes, he had the OAMS off, there is no doubt about it.

HOU And he rolled 15 degrees in flight control 1?

HAW That is affirm. Strictly out of the Agena.

HOU And how is pitch and yaw?

HAW They look good from here. It looks like it is just roll.

HOU Okay, any way of telling what you think it might be?

HAW Okay, we have got an indication of spacecraft free.

HOU What?

HAW It looks like he starting to undock.

HOU Okay.

HAW No, we don't know what it is yet, Flight. Gyro 2 turned back on. On the spacecraft. No thruster firing on the spacecraft at all.

HOU Roger, Hawaii.

S/C Hawaii, this is 12. Undocking successful.

HAW Roger, very good.

S/C I was able to give our control a slight workout before we redocked to see if there is anything wrong.

HAW Okay, we are standing by.

S/C Touchdown. Down firing thruster.

HOU Hawaii Com. Flight. Send us Gemini continuancy Alpha's during the control exercise.

HAW Okay.

HOU How does it look to you?

HAW Looks good, doesn't seem to be any problems at all.

HOU What is the Agena doing? Holding in roll?

HAW We had quite a lot of thruster firing on jet no. - that is still off on roll. The Agena thinks it is coming back in now.

HOU Okay.

HAW It looks like we are going to miss our dump on the Agena here.

HOU Okay. Can you send us a couple of Agena sums please?

HAW Which kind? A lot of yaw left activity here at the present.

HOU Where? Spacecraft or Agena?

HAW Spacecraft. No, it is looking okay.

HOU What control modes is he using now? Hawaii.

HAW We are showing rate command.

HOU Okay.

HAW Okay, we are going to send reset timer reset command.

HOU Okay.

HAW 12 Hawaii. At the present time we are transmitting reset timer reset to the spacecraft - I mean to the Agena.

S/C Roger.

HAW Okay, you can turn your encoder back on.

S/C Encoder was on, Hawaii.

HAW It was? Oh Oh, we have indication on the ground that it wasn't. Flight we are not showing encoder lock at all on the ground. We sent the command and it was verified.

S/C The encoder has been on.

HOU He said the encoder was on?

HAW Yes, it is obvious it isn't at all or at least it isn't locked on.

HOU Okay, he thinks the encoder is on from the switch and we are getting commands through.

HAW Hold on. The control mode looks real good.

HOU Okay.

HAW 12, Hawaii, you might be advised that our command got into the Agena okay.

S/C Roger, you feel there is anything wrong with our encoder?

HAW Yes, it kind of begins to look that way.

HOU Well, he has had satisfactory control with it has he not, Hawaii?

HAW Well, I don't know whether he has done any controlling recently. I will check right here. 12, Hawaii. Have you done any controlling recently, oh oh, it locked now.

S/C Say again, Hawaii.

HAW We are showing encoder locked at the present time.

S/C Okay, roger. We concur.

HAW Roger. Okay.

HOU What does he concur with, that it is on?

HAW Yes, he concurs it. Apparently he did have it off.

HOU Okay.

HAW Pitch horizon sensor showing off-scale low.

HOU Okay, is he satisfied with the control system?

HAW 12, are you satisfied with the control system?

S/C Roger, we checked it out and pulse and rate command and the control system is go.

HAW Okay, it looks like you turned it back off.

HOU Okay, would you tell them about the PPS.

S/C ...control system is off.

HOU And the SPS phasing for the eclipse.

HAW Okay. 12, Hawaii. You are no go for the present time on the PPS burn. Instead of doing that we are going to do an SPS retrograde burn of approximately 54 feet per second at an elapsed time of 5 - 7 hours 5 minutes and this is to rendezvous with eclipse at roughly 16 hours.

S/C This is 12. Let me see now. We are no go at the present time for a PPS burn and we are going to do a retrograde SPS burn at about 7 hours 5 minutes to rendezvous with ....

HAW That is roger and it will be a 54 foot per second burn.

S/C Okay. Roger, the eclipse sky goes after all.

HAW Yes, it kind of looks like it.
I don't know Flight, we are still a little unhappy with this Agena.

HAW Thinking about it. We are thinking about it some more.

HOU What do you mean?

HAW Oh, it looked like it was coming back in but it seems to be wondering around. 12, Hawaii, we will have LOS here in about another 30 seconds.

S/C Roger, Hawaii.

HOU Ask him how he likes the Agena. Are you talking about the roll axis?

HAW Does the Agena look stable to you from where you are?

S/C This is 12...

HAW LOS Flight.

This is Mission Control Houston. We have had loss of signal at Hawaii station. The apparent problem in the control system seems to have been resolved as being either the thrusters from the Gemini during the undocking causing the Agena to move about a bit or physical bumping of the Agena by the nose of the spacecraft which caused the erratic attitude indications on telemetry at the tracking ship Rose Knot at the beginning of this last revolution. As further flight plan updates come along we will pass them up to you on the exact times of the secondary propulsion system burn during the upcoming pass over the tracking ship Rose Knot. There is an eat period scheduled at 6 hours 11 minutes and 33 seconds after lift-off. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston, six hours, 27 minutes after liftoff. We have had electronic contact with the spacecraft Gemini 12 from the tracking ship Rose Knot. Flight Director Glenn Lunney at the present time is issuing instructions to the spacecraft communicator on board the RKV for passing up to the crew. Let's join that conversation now.

HOU 425 is 90430, the VM word, the index 531 and from LSB to MSB 000 100 101 000 000.

RKV Roger, I'll read back.
531 000 100 101 000 000.

HOU Roger. Have your man confirm that that is 43 feet a second , have the crew toggle in and verify it.

RKV Roger, Roger.

RKV Okay, we have both vehicles in GO and heading 000 .... Agena.

HOU Say again RKV.

RKV We can tell the Agena is 000, FC-2, both vehicles GO.

HOU Roger

RKV Gemini 12, RKV

S/C Go ahead RKV, 12 here.

RKV Okay, I have information for your burn, ready to copy.

S/C Roger, standby one.

RKV Is that an SPS Unit 2 burn on the Agena.

HOU That's right, that's affirmative SPS Unit 2.

RKV Roger, Purpose - horizontal retrograde burn GET 07 05 06, Delta V 43 feet per seconds. Delta T 51 seconds. 2590430, thrusters SPS unit 2. Your VM word that you toggle in will be 531 000 100 101 000 000. Did you copy.

S/C Roger. Understand the purpose of the burn is a horizontal retrograde SPS. GET of the burn is 07:05:06, Delta V 43 feet per second, Delta T 51 seconds. 2590430, thrust 26270, thrusters SPS Unit 2. Maneuver and retrograde VM word 531 000 100 101 000 000.

RKV Roger, you copied correct.

HOU Have him go ahead and load the VM and verify it.

RKV Roger, would you load the VM and verify it.

S/C Roger.

RKV ... garbled ... on dock. S-Band wide, purge is low. 000.

HOU Have him gyrocompass around after they've got that loaded. Gyrocompass around to 180.

RKV Alright Gemini 12, RKV. Would you have that VM ordered in, would you gyrocompass around to 0180.

S/C 12, Roger.

S/C RKV, Gemini 12, the VM word is in if you detected.

RKV Roger.

HOU Verify that word RKV.

RKV Will do Flight.

RKV Roger, it checks Flight.

HOU Roger. Can you verify this 43 feet per second.

RKV Negative Flight, we have not verified that yet.

HOU Have somebody do that.

HOU RKV, Flight.

RKV Go ahead Flight.

HOU Has he started to bring it around yet.

RKV Roger, Flight, he's bringing it around now.

HOU Okay, what flight control mode.

HOU What flight control mode are you in RKV.

RKV Standby Flight. He is not in proper mode, he is in S-Band now.

HOU Say again.

RKV He is not in a proper mode, he is in S-Band Wide.

HOU Okay, is he coming around.

HOU RKV is he..

RKV (garble)

HOU Say again.

RKV He's is a control mode for plus 90.

HOU Okay.

RKV He is coming around to plus 90 then he will go to 180.

HOU Okay, does it look like it's going alright.

RKV Roger, Flight.

HOU Okay

RKV 12, RKV, (garble) minus 1, VM checks on the ground.

S/C Roger, VM checks on the ground.

RKV Okay

S/C We are gyrocompassing around now.

RKV Flight, reset that VM to 42.62.

HOU Roger.

RKV He says he is gyrocompassing now. They are off scale low. He looks like he is doing alright now, Flight.

HOU Okay.

RKV LOS on Gemini, this is RKV.

This is Mission control Houston, we have loss of signal from the tracking ship Rose Knot of both spacecraft. The next station to acquire will be the Tananarive voice remoting station in some 20 minutes from now. We'll come back up at that time with the conversation between the spacecraft communicator here and Mission Control and Gemini 12. At 6 hours, 36 minutes and 12 seconds after liftoff, this is Mission Control

END OF TAPE

This is Mission Control Houston at 6 hours, 56 minutes and 4 seconds after liftoff. We're standing by now for a voice remoting from Mission Control here in Houston through the Tananarive tracking station. Pete Conrad is now putting in a call to the spacecraft through Tananarive. Let's join the conversation now.

TAN — Tananarive, over

S/C — Roger, this is 12.

HOU — Okay, I've got a little word for you here. After you're burn, we'd like you to, at your convenience purge fuel cells no. 2 then fuel no. 1, and you can go ahead after you purge and power down. We intend to give you your flight plan update for the rest of the evening at the CSQ and if you're ready I'll give you node update here.

S/C — Roger, 10... We're having some trouble with gyro compassing the Agena. It doesn't seem to want to hold.

HOU — Okay, are you in flight control mode 1 or 2?

S/C — It's been going from 60 to 30 degrees either side of the proper heading.

HOU — Okay, are you in flight control mode 1 or 2?

S/Ce — Flight control mode 2.

HOU — Okay. Does he think it's satisfactory for the burn?

12, Houston. Has it been doing this in flight control mode 2?

S/C That's affirmative. It does the same thing in flight control mode 1.

HOU Okay. You're trying to tell me that you don't think it's satisfactory to do the burn. Is that correct?

S/C Say again?

HOU I say, you're indicating to me that you don't think it's satisfactory to do the burn.

S/C That's affirmed with the Agena control. Right now, she's just rolled 40 degrees to the left of the proper heading.

HOU Did you say roll or did it yaw?

S/C Sorry, yawed 40 degrees and rolled about 15.

HOU Rolled about 15?

S/C Affirmed. We used the gyro compass alright in the right direction but then it overshoots when we get it settled down, it then starts to drift off about 30 or 40 whether we're in flight control mode 1 or 2. On the burn, I think we could probably do it with the spacecraft flight command. Over.

HOU Okay, why don't you quickly go to gyro compassing at the proper heading there is FC-7 once. And see if it holds in FC-7.

S/C Roger.

HOU 12, Houston.

S/C Go ahead Houston.

HOU How's FC-7 doing?

S/C We're trying to get it back to the proper heading with spacecraft control so I'll put FC-7 initial mode.

HOU Okay, now when you say get it back to the proper heading, are you satisfied that you got a good platform alignment?

S/C Roger, we have a good platform alignment just out the window here.

HOU Okay. 12, Houston.

S/C Go ahead.

HOU Okay, we only have about 2 minutes and 30 seconds on this pass. If it doesn't look good in flight control mode 7, we want you to make the burn with your OAMS system, but set up 41.5 fps for the OAMS.

S/C Do you want us to use our OAMS fuel to set up this burn?

HOU Say again.

S/C Do you want us to use to use our OAMS fuel to set up that burn?

HOU That's affirmative. On your computer set up 41½ feet per second in address 25, vice the number of feet per second giving you in the velocity meter load.

S/C Roger. If we burn SPS, what do you want us to have in address 25?

HOU We passed you. We would appreciate it if you could get into FC-7 before this pass is over. We've got 1 minute and 30 seconds. We'd like to know which way you're going to go.

S/C Roger. We're in flight control mode 7 right now, and it looks like it's holding within about 5 degrees

HOU Okay, 12. Is is oscillating 5 degrees?

S/C Negative, it seems to be holding pretty steady right now.

HOU Okay. Because in FC-7 it should be locked in tighter than a drum. Okay, we only have 30 seconds. What do you think?

S/C We're going to purge flight control mode. We're going to purge into SPS. Standby.

HOU Okay, just use your checklist there, attitude control, rate command and the power switch off. She gets away from you, take it over with the Gemini.

S/C Affirmed.

This is Mission Control Houston at 7 hours and 4 minutes 50 seconds after liftoff. We've had loss of signal through the Tananarive voice remoting station. We're coming up now on the time that the secondary propulsion system burn is scheduled. Mark..they should begin the burn at that time. We'll have confirmation of this burn and the results during the pass over the Coastal Sentry later on in this rev, which is due in about 13 minutes from now. This is Mission Control Houston.

This is Mission Control Houston at 7 hours 18 minutes 54 seconds after lift-off. We have just now come into the acquisition area of the tracking ship Coastal Sentry for what may be the last pass of the evening in which the crew will still be awake. They are going to bed about an hour earlier than previously scheduled so that they can get awake 2 hours earlier in the morning for the eclipse which will occur at 16 hours 2 minutes ground elapsed time. Let's tie in now with the conversation between the spacecraft communicator aboard the Coastal Sentry and the crew of Gemini 12.

CSQ — Agena is go.

HOU — Say again.

CSQ — The Agena is go.

HOU — How does it look to you. In attitude all right?

S/C — This is 12 say again.

CSQ — Gemini 12, CSQ.

S/C — CSQ..

CSQ — How did the burn go?

S/C — Roger, we burned the Agena...we burned it in flight control mode 7 with the Agena control. Address 8 shows is with the platform it was not aligned at rendezvous. ... zero zero zero 1281300 028 82 reads minus 0019. Yaw attitudes real good.

S/C We have recaged the platform to the Agena attitude now. Looks like it was about 2 or 3 degrees off. And all the attitudes are quite well now.

CSQ Roger. Flight, CSQ.

HOU Go ahead.

CSQ Okay, attitude is 01800.

HOU 01800? What flight control mode is he in?

CSQ FC-1

HOU Okay, and does the vehicle look all right. Holding its attitude about right?

CSQ It looks good right now. We want to keep a good look on it.

S/C CSQ, Gemini 12. Can you tell us whether it was a VM shutdown or whether we shut it down...

HOU Say again.

CSQ Did you turn the encoder off?

S/C Encoder off.

HOU Another Gemini main please.

CSQ 12, CSQ.

S/C CSQ, 12 go ahead

CSQ Have a lock up date and flight plan update for

CSQ you when you are ready to copy.

S/C Roger, stand by a minute. This is 12, ready to copy.

CSQ Okay, here it is 6-3 Aplha, 08 35 01, 19 plus 17 24 plus 50. All bank angles..80 roll right 100. The weather in all areas is good and a SEP maneuver is required for all areas. Area 7-3 Bravo. 10 10 47, 18 plus 49, 24 plus 36, area 8-Alpha Charlie, 11 06 38, 20 plus 04, 22 plus 44. Area 9-Alpha Charlie 12 40 24, 20 plus 06 22 plus 41. Area 10-2 Bravo. 14 14 08, 20 plus 04, 22 plus 39. Area 11-Alpha Charlie. 15 50 31, 19 plus 59, 23 plus 53. Area 12-Alpha Charlie 17 26 18, 19 plus 48, 24 plus 38. Do you copy?

S/C This is 12, I copied the updates.

CSQ Okay, and I have a flight plan update for you.

S/C Roger, go ahead.

CSQ 57 plus 30 start sleep period, 8 plus 05 ground ...S-12 door will be opened, 14 plus 20 ground ECS S-12 door closed and locked. 14 plus 40 end of sleep period. 14 plus 42 flight plan update over Canary. Do you copy?

S/C Roger. I have copied ... 8 plus 05 S-12 open and 14 plus 20 S-12 closed 14 plus 40 sleep, 14plus 42 flight plan update.

CSQ Roger, we realize you have been busy today, but have you had a chance to drink any water.

S/C Roger, we have had some water and drank about 8...water.

CSQ ..Charlie.

S/C A sub for the brownies.

CSQ Roger.

S/C The pilot finished everything and that is..

CSQ How much water?

S/C The gun is now reading 814. Do you by any chance have our inertial reading?

CSQ Stand by.

HOU 715.

CSQ Say again Flight.

HOU 715.

CSQ We don't read you Flight. Say again.

HOU 7 1 5.

CSQ Roger.

HOU CSQ Flight

CSQ Go ahead Flight.

HOU Ask him if the purge went all right and is he powered down.

CSQ 12, CSQ

S/C CSQ, 12, go.

CSQ Did the purge go all right?

S/C We haven't had enough time yet. Sorry.

We are coming up on LOS.

HOU Have them go ahead and do that.

CSQ Flight, CSQ.

HOU Go ahead.

CSQ I didn't have enough time Flight, he is

LOS.

HOU Okay, was he still - what was still on at your

LOS?

What equipment.

CSQ The computer was on, he was rate command,

HOU Was the platform on?

CSQ Platform was on.

This is Mission Control Houston at 7 hours 27 minutes and 48 seconds after lift-off. We have had loss of signal on both spacecraft over the tracking ship Coastal Sentry. We will be coming up overrHawaii at - in approximately 10 minutes from now. We will stand by to see if there is any further conversation before the crew takes their rest period for the night. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston at 7 hours 37 minutes and 4 seconds after liftoff. We have just now come in to the acquisition area of the Hawaii tracking station with both the Gemini spacecraft and the Agena Target Vehicle. We are standing by now for conversation between the spacecraft communicator and Hawaii and the crew of Gemini XII. This will likely be their last pass over a station in which they are awake, or at least they will go in to a rest period shortly thereafter. Let's join that conversation now.

HAW Roger, we've got a bunch of items we would like to clean up here. First of all I would like to get started is a purge. We are also showing 02 to H2 Delta P lights on.

S/C Roger, we have just completed a purge. We are in the process now of powering down both Delta P lights are on...Would you believe that.

HAW Roger, we sure would.

S/C Okay, mighty fine, on that.

HAW Get the readings onboard.

S/C I've seen this light before.

HAW Yeah, yeah. What we'd like to know is the last time you reported the readings you gave us some information on them and at the time was the Delta P on when you gave the readings?

S/C Roger, it was.

HAW What are they reading now? Could you give us the readings again then?

S/C Roger, on section 1 the H2 now reads about .70 and the H_2O reads 2.2.

HAW Roger, copy.

S/C On section 2 point 65, for the H2 and H_2O is about 2.1.....2 point 1 5 .

HAW Roger Thank You

S/C Seems to be within the limit, I'm not sure why the lights are on.

HOU Yeah, it looks good here.

HAW That's the way it was the last time too.

HAW Thanks a lot, we're looking in to it, it's kind of a wild one.

S/C Roger.

HAW I notice you have your encoder off so we're going to send a command to the Agena to reset the emergency timer.

S/C Roger. go ahead.

HOU Okay.

HAW Okay, we've got it. I guess there is no need to turn the encoder on is there. Since he's already separated.

S/C Roger, ready to turn the encoder back on.

HAW Roger, go ahead. Is he docked?

HOU Hawaii we need some summary from you and a contingency charlie in the Agena.

HAW Roger

HAW Hey Bud is he still docked, I was under the impression they had already separated.

HOU No, he should be docked. Why should he be separated?

HAW Oh, that maneuver was done with the spacecraft in a docked configuration.

HOU Affirmative....that's alright Hawaii let's see if we can get the rest of this done on this pass. How about the PQI and the purge? Did he get the purge in yet.

HAW That's firm, he's completed it.

HOU Okay, PQI before he goes to sleep.

HAW Okay, could we get the PQI Gemini 12?

S/C Roger, PQI is 55 percent.

HAW Roger copy 55. Thank you.

S/C Anything else.

HOU We need some Agena summaries from you.

S/C We'll send them, which kind do you want? What would you like?

HOU We need Agena main and charlie.

S/C Agena main and charlie, Rog.

HOU Okay, everything look alright for the night?

S/C Yes, it sure does. 02 tank pressure is up around 900.

HOU Roger.

S/C That should be good.

HOU How does the ACS look on the Agena?

S/C Within bands and holding.

HOU Okay

S/C Yeah, we're showing the PPS gas that's B059 as 2 point 06 thousand PSI. It's on a 1218

HOU Roger.

Hawaii from flight, is he powered down and what is the pump configuration?

HAW He's got both B pumps on. He is powered down.

HOU Hawaii from flight.

HAW Go flight

HOU Okay why don't you give them our best for the night.

HAW Gemini 12 Hawaii

S/C Go ahead Hawaii.

HAW Roger, it's been kind of a busy day thanks much that about does it and flight says to tell you Good Night.

S/C Thank you and glad the flight gave us a Delta P light , we feel lonely without them up here.

HAW Oh yeah.....

HOU LOS hawaii minus one.

HAW Roger....

This is Mission Control Houston. We have loss of signal from the Hawaii tracking station. The crew of Gemini 12 have been given a "go" for sleep. It is highly unlikely that any of the subsequent passes during the night will be any conversation however, we will be monitoring the passes for spacecraft conditions. Systems conditions as indicated telemetry. At 7 hours

46 minutes and 2 seconds after liftoff, this is Mission Control.

END OF TAPE

This is Gemini Control. The Gemini 12 spacecraft is approaching the west coast of South America at this time at 8 hours 3 minutes 38 seconds into the mission. To recap, during the day the primary propulsion system burn was scrubbed, the Agena due to the probability of a bearing malfunction which would cause the turbo.. fuel-turbo pumps to overspeed. Therefore, the high apogee over the United States is out. The OAMS was burned a short while ago to enable the spacecraft to phase in order to get the solar eclipse pictures at 6:50 am CST tomorrow morning. The flight director, Glenn Lenney declared the sleep period as of 7 hours 44 minutes into the mission , which is approximately 1 hour early. We estimate they will arise 1 to 2 hours early tomorrow morning. After they get up at an earlier time then we originally calculated, they will be in phase hopefully to acquire the eclipse photography. We did accomplish during the day, rendezvous and docking which was one of the major aims of our flight, Gemini 12. They did accomplish the M-408 experiment which is to measure radiation around the spacecraft, while going through the South Atlantic anomaly At 8 hours 5 minutes 15 seconds into the mission, this is Gemini control.

END OF TAPE

This is Gemini Control. Nine hours, 23 minutes, 32 seconds into the mission of Gemini 12. Hawaii has lost signal with Gemini 12 at nine hours, 18 minutes into the mission. There has been no voice contact with the Gemini 12 astronauts since the sleep period was declared seven hours, 44 minutes into the mission. The Black team has now gone off duty. The Blue team is now on duty here at the Control Center. Gene Cranns is acting as Flight Director. We have Deke Slayton sitting in as Cap Com with astronaut Bill Anders asisting. During the night this team will recalculate the flight plan for tomorrows activities. The S-12 experiment, the micrometeorite collection experiment door has been opened at sometime shortly after 11:00 o'clock Central Time this evening by a ground signal. At 11:45 this evening, 45 minutes pass the hour, Costal Sentry reported that both crew men are asleep. Hawaii reports that Gemini and Agena look good from telemetry and that if the Agena is rolling, it is rolling very slowly so it appears to be stabilized. The weather forecast for tomorrow appears to be in the dash one or primary area off the East coast of America, 8 to 10 foot swells, 5 to 7 foot waves, 25 knot winds, the ceiling is forecast to be 1000 foot scattered. This is acceptable, but not too good in that area. In the East Atlantic, in the West Pacific and in the Mid-Pacific landing area, the weather appears to be good and is forecasted to remain good through tomorrow. At 9 hours, 25 minutes, 41 seconds into the mission of Gemini 12, this is Gemini Control.

END OF TAPE

This is Gemini Control. Ten hours, 3 minutes, 31 seconds into the flight of Gemini 12. Ascension has lost the signal of Gemini 12 spacecraft, ten hours and one minute into the mission. There has been no voice contact with the astronauts in the sleep period. The sleep period has been going on now for approximately two hours, twenty minutes. Astronaut Lovell's heart rate is 64 beats per minute. Astronaut Aldrin's heart beat is 58 beats per minute. The breathing rate for Astronaut Lovell is 12 per minute and for Astronaut Aldrin it is 12 per minute. Both astronauts were reported asleep at one hour and five minutes ago. Information has reached us that tomorrow morning when the endeavor to take eclipse photography, the position will be 6.5 degrees South, 82.1 degrees West. That puts them right at the coast of South America. That will happen 16 hours, 2 minutes, 3 seconds into the mission of Gemini 12. This is Gemini Control.

END OF TAPE

This is Gemini Control at 11 hours 3 minutes 31 seconds into the flight of Gemini 12. The position of the spacecraft is approaching the Rose Knot ship off the South American coast. We still have no voice contact with the astronauts in the sleep period. They have been in the sleep period now for approximately 3 hours and 20 minutes. Astronaut Lovells heartrate is 48 beats per minute. Astronaut Aldrins heartrate is 50 beats per minute. The breath rates are: Lovell 14 per minute, Aldrin 14 per minute. Doctor Hawkins, the NASA doctor on duty here in the Control Center, advises that they are both sleeping soundly. The apogee at this time of the spacecraft in 153.8 miles, the perigee is 139 miles The Gemini 12 spacecraft, as we said, is in the sleep period; however, it's quite evident here in the control center that nobody here is sleeping. Gene Kranz, acting as flight director, and the staff support rooms are busily engaged in updating the flight plan for tomorrow. At 11 hours 4 minutes 51 seconds into the flight of Gemini 12, this is Gemini Control.

END OF TAPE

This is Gemini Control, 12 hours 3 minutes 31 seconds into the mission of Gemini 12. We're in the 9th revolution over China approaching the eastern coast of China. Coastal Sentry ship will acquire the spacecraft with telemetry at 12 hours 4 minute 46 seconds into the mission. We still have no voice contact with the spacecraft, still being in the sleep period. They have been in this sleep period now for some 4 hours 20 minutes. We assume that they have been asleep for at least 3 hours and 5 minutes since the Coastal station confirmed that fact 3 hours and 4 minutes ago from readouts. They are still docked on the Gemini. We have a report that a low pressure area is being watched by the National Hurricane Center at Miami. At 5:30 EST this morning an aircraft will investigate this low pressure area to make a determination on it and see what it actually is. We know that the predicted weather for tomorrow in the -1 or western Atlantic area should be about 2,000 feet broken. We should have about 25 knot winds. We should have 8 to 10 foot swells with 5 to 7 foot waves. This is acceptable, but not most desirable for a landing situation. At 12 hours 5 minutes 15 seconds into the mission of Gemini 12, this is Gemini Control.

END OF TAPE

This is Gemini Control, 13 hours 3 minutes 34 seconds into the mission of Gemini 12. The position of our spacecraft now is approaching the west coast of Africa. Our Ascension tracking station will acquire in less than 1 minute from now. We still have no voice contact with the crew. The sleep period began 5 hours 20 minutes ago. For a short recap on the first days activities in Gemini 12 flight, we did accomplish rendezvous and docking, a main objective in Gemini 12. We accomplished M-408 experiment, which is a Beta Spectrometer. To measure radiation while the spacecraft is going through the South Atlantic anomaly, that was accomplished. The crew went to sleep one hour early - or correction, their sleep period 1 hour early. Also, during the first day of this mission, we did not have a primary propulsion system burn on the Agena which would have heightened our apogee to some 400 nautical miles over the United States for photographic reasons. We did not have that due to the probability of the fuel turbo pump varying malfunction. Therefore, we will not have that high apogee photography on the mission. We did have a secondary propulsion systems Agena burn in order to phase the Gemini 12 to be in position where the Solar Photography at 16 hours and 2 minutes into the flight. At this time, the apogee of Gemini 12 is 154 nautical miles, the perogee is 139 nautical miles, approximately. The crew will arise at approximately 14 hours 42 minutes or 1 hour 40 minutes from now. The eclipse photography at 16 hours and 2 minutes into the mission should be accomplished approximately 3 hours from now. After that, they will engage in the preparation and then the accomplishment of

the first standup EVA, or extra vehicular activity for astronaut Aldrin. This should last some 2 hours 18 minutes during which time, he will accomplish the S-13 experiment which is a photographic experiment to photograph star fields for the purpose of investigating ultraviolet regions in these star fields. After that, they will close the hatch, repressurize the spacecraft and go on with the mission. There is a low pressure area being watched by the National Hurricane Center approximately 1300 nautical miles southeast of Cape Kennedy at positioning of 24 degrees north, 60 degrees west. That is on the eastern edge of our prime or -1 landing zone. The weather forecast for that area for tomorrow, is 2,000 feet scattered 8 to 10 foot swells, 5 to 7 foot waves and 25 knot winds. This is not obviously an ideal landing condition. It is acceptable, however. At 5:30 am this morning eastern standard time, an aircraft will fly out to investigate the area we just mentioned in our -1 landing area. We had no further word on the condition of that area other than what we just said that is a low pressure area which is being watched by the National Hurricane Center. At 13 hours 7 minutes 47 seconds into the mission, this is Gemini Control.

END OF TAPE

This is Gemini Control, 14 hours, three minutes, 31 seconds into the mission of Gemini 12. Gemini 12 spacecraft is now over the Pacific Ocean. It's in its tenth revolution. The Rose Knot will acquire in some 20 minutes from now. We still have had no voice contact with the astronauts. We're informed by the doctor on duty here at the Control Center that they are still in a sleeping state. They have been in sleep period for six hours, 20 minutes now. They're due to arise some 40 minutes from now -- 14 hours, 42 minutes into the mission. When they do arise, they will get prepared to accomplish the eclipse photography at approximately 16 hours, two minutes into the mission or two hours from now. Presently the heart rates stand at Astronaut Lovell -- 15, Astronaut Aldrin -- 12 per minute. Breath rate is Lovell -- 50, correction breath rate is Lovell -- 12, Aldrin -- 12. After they accomplish the eclipse photography, we will go in immediately to EVA preparations; and after that, the EVA will be accomplished. We do not have times on that as yet. We hope to by a few minutes from now. At 14 hours, five minutes, 9 seconds into the mission of Gemini 12, this is Gemini Control.

END OF TAPE

This is Gemini Control, 14 hours, 41 minutes, 31 seconds into the mission of Gemini 12. The Gemini 12 spacecraft is approaching the coast of Africa -- the west coast of Africa. It will come in the acquisition area of Canary Islands at 14 hours, 42 minutes, 30 seconds or less than one minute from now. At this time, it is planned to wake the crew up and to update their onboard systems for a burn -- an SPS Agena burn -- secondary propulsion burn to phase the spacecraft with the solar eclipse and pass on further information. We will now stand by for astronaut voice contact with the Canary Islands tracking station.

CYI	Canary says TM solid both vehicles.
HOU FLT	Roger. We're go. Roger, Canary, have at it.
CYI	Gemini 12, Canary Cap Com. Gemini 12, Canary Cap Com. Gemini 12, this is Canary Cap Com.
S/C	Canary, this is 12. You're loud and clear. How me?
CYI	I hear loud and clear. Good morning. Did you have a good sleep.
S/C	Oh, so so. Not bad.

CYI Ok. Could you turn your encoder on, please. We're going to update the VM mode for a burn.

S/C Roger.

CYI OK. We have a long flight plan update for you. I hate to give it to you when you first wake up. Let me know when you're ready.

S/C Roger, Canary. This is 12. Ready to copy.

CYI OK. First of all, I'd like to check the positions of your spectrometer switches.

S/C Roger. X-Ray is on, and the Beta is .....

CYI OK.. Would you turn both of them to the off position, please.

S/C Roger. They're both off.

CYI OK. We got a good VM word in your ... you can turn the encoder back on. And I'll give you your Agena maneuver update here. The purpose is eclipse phasing. The GETB is 15 16 18. Delta V is 15.0. Delta TB -- 18 seconds. Thrusters for SPS -- unit two. Maneuver GDA forward posigrade. Over.

S/C Roger. Understand. Eclipse phasing. GET a burn 15 +16 +18. Delta V -- 15.0. Delta TB -- 18 seconds. Thrusters SPS unit two. GDA

forward posigrade.

CYI — OK. Now here comes the flight plan update, and if I don't get it all to you, we'll pass it over KANO. OK. Here's your eclipse procedure. The camera configuration -- the 16mm Maurer -- we want the 18mm lens -- F2 at 1/50 seconds, six frames per second. Use S0368 film. The 70mm Maurer -- S.95, S 29 back. No filter. On the super-wide Hasselblad. Use 80mm lens at S 11 at 1/250 range infinity. Film S0368.

HOU FLT — OK, Bill. Make sure he's copied so far.

CYI — OK. Have you copied so far, 12?

S/C — Roger. Except for one thing. We don't have an 80mm lens on our Hasselblad.

CYI — OK. I'll go on with the rest of it, and we'll get back to that. Did you copy that, Flight?

HOU FLT — Affirmative.

CYI — OK. The procedure is prior to the eclipse, command pilot install the window filter, and the pilot install the opaque sleep shade. Put the ACS off and align the spacecraft on the sun. Do you copy?

S/C — Roger. We have that.

CYI — OK. At 15:48, you'll have sunrise. At 15:51:33 enter penumbra. At 16:00 -- 16mm Maurer on. At 16:01:44 -- start total eclipse. Take the following as possible with the 70mm Maurer. A -- one minimum time exposure. B -- one one-second exposure and C -- one four-second exposure.

HOU FLT — OK. See if he copied, Bill.

CYI — Did you copy up to this point?

S/C — Roger. Say again the time after sunrise.

CYI — OK. 15:51:33 you enter penumbra. That should put 5:51:33 penumbra.

S/C — Roger.

CYI — OK. At 16:01:52 end total eclipse. Maneuver spacecraft to photograph ground shadow. Pitch down 25°, yaw left 135°. Keep sun off windows. D set the 16mm Maurer to S16 1/200, range infinity. One frame per second.

S/C — Roger. Say again after 16mm Maurer.

CYI — OK. Set at a depth 16. Your time will be 1 1/200. Your range infinity. One frame per second.

HOU FLT — OK, Bill. I think you're going to ...

CYI — ... 16mm Maurer F16 1/200. Infinity. One frame per second.

S/C — Roger.

CYI — Track and photograph the moon's shadow with your 16mm and your Hasselblad.

S/C — Roger.

CYI — This sets your TX. Ok. About 30 seconds here to LOS, so I'll keep reading.

HOU FLT — Cut him off, Com Ted. Kano remote. Canary local.

KNO — Kano's remote, and we have acquisition.

HOU FLT — Gemini 12, Houston Cap Com, through Kano. Are you reading?

S/C — Roger. Go ahead, Houston. This is Gemini 12.

HOU FLT — Roger. Continuing your update at 16:10:33 -- exit penumbra. Set up spacecraft 000. Agena 0 180 0. Do you copy?

S/C — Roger. 16:10:33 -- exit penumbra. Spacecraft 000. Agena 0 180 0.

HOU FLT — OK. On 02 usage -- is slightly ahead of schedule, and with your concurrance, we'd like to make this SPS burn with your platform powered down. Over.

S/C Roger.

HOU FLT OK. We'll be giving you a flight plan update at Canary at 16:16, and at your convenience, can you take your S3 thermo cover off.

S/C Roger. We'll take the frog egg cover off.

HOU FLT OK. Now I'm standing by for a GE time hack at 14:51:30. Mark. 14:51:30.

S/C Roger. We're right on.

HOU FLT OK.

S/C Houston, This is 12. We still have both Delta P lights on.

HOU FLT Roger. We understand, and as far as your superwide goes, leave the lens you have. Go with the other settings.

S/C Roger. That's for taking the shadow. Take them with the same thing?

HOU FLT Roger. Leave the lens you have on there and leave the settings we gave you.

S/C How about turning off the fuel cell Delta P circuit breaker.

HOU FLT Standby. You're go for your burn. Do you want to check your water heater circuit breaker?

S/C — How about turning on some fuel cell Delta P circuit breakers so we can turn the lights off.

HOU FLT — Stand by. We'd like to keep them off unless it's bugging you too bad.

S/C — ....

HOU FLT — We've got 30 seconds to LOS. And I say again on your super-wide Hasselblad -- use the lens you have, use your updated settings.

S/C — Roger. Understand.

HOU FLT — That ought to keep you busy.

KNO — Kano has LOS.

END OF TAPE

HOU ...Mark. 14:51:30.

S/C Roger, we're right on it.

HOU Okay.

S/C Houston, this is 12. We still have both Delta P lights on.

HOU Roger, we understand and as far as your super wide goes, leave the lens you have. Go with the other settings.

S/C Roger, that's affirm. By taking the shadow, take them at the same setting.

HOU Roger, with the--leave the lens you have on now and leave the settings that we gave you.

S/C All right. How about turning off the fuel cell Delta P circuit breaker.

HOU Stand by. You are go for your burn. You want to check your water heater circuit breaker?

S/C How about turning off the fuel cell Delta P circuit breaker, so we can turn the lights off?

HOU Stand by.

We'd like to keep them off unless its bugging you too bad.

S/C We'll leave it the way it is right now.

HOU Okay, you've got 30 seconds to LOS. And I say again on your super wide Hasselblad, use the lens you have, use your updated settings.

S/C Roger, understand.

HOU That ought to keep you busy.

KNO Kano has LOS.

This is Gemini Control. We started with a conversation between Canary Islands updating the spacecraft and the crew. Canary Islands lost contact and we ended with Kano going remote and Bill Anders here in the Houston Control Center finishing their briefing for the update. During this time, they passed up camera configuration for the solar eclipse photography. They indicated that prior to eclipse, the command pilot will install window filter and the pilot will install an opaque sleep shade. This will be done obviously with doors closed, not in an EVA situation. They gave the times as entering the penumbra or the light shadow area as 15 hours, 51 minutes, 33 seconds into the flight; at 16 hours, they'll turn the 16 mm Maurer camera on. At 16 hours, one minute, 44 seconds, they'll start the total eclipse photography. At 16 hours, one minute, 52 seconds, end the total eclipse photography. They will track and photograph the Moon's shadow, with the 16 mm Maurer and the Hasselblad, also, after this. They will exit the penumbra, or the light shadow area, on the other side at 16 hours, 10 minutes, 33 seconds into the flight. The crew was also advised that the O_2 usage onboard is slightly ahead of schedule, and it is our desire to leave the platform powered down for the SPS burn. We had an indication

from the crew, when they were awakened by Canary Islands that they had a good sleep, it was not bad, sort of so-so. We also have an outlook on the weather. In the Atlantic area, the outlook for the tropical Atlantic west of longitude 35, the Caribbean Sea and the Gulf of Mexico, a low pressure system with an extensive area of cloudiness and showers about 800 miles northeast of Puerto Rico continues this morning and this will be investigated again later in the morning by reconnassaince aircraft. Elsewhere around the world, conditions seem to be fine and normal. At 14 hours, 56 minutes, 11 seconds into the mission, this is Gemini Control.

END OF TAPE

This is Gemini Control; 15 hours, 3 minutes, 30 seconds into the flight of Gemini 12. We have just given you the update and the astronaut contact with Canary Islands and with Astronaut Bill Anders here at the Control Center. They have been updated for the Agena secondary propulsion system burn, which should take place at 15 hours, 16 minutes, 18 seconds into the mission with a velocity change of 15 feet per second. This should affect the apogee, but in a very minor way. Not more than seven or eight miles. This is a phasing maneuver, so the Gemini 12 spacecraft will be in a position to take photographs of the solar eclipse. We have a long dry spell in front of us now between contacts. We do not reach another contact point with the Gemini 12 spacecraft until 16 hours, 5 minutes, 54 seconds into the mission, which is one hour from now roughly. Until that time, we assume that the updates are sufficient and the pilots have sufficient knowledge now from the ground from the Flight Controller to accomplish the mission of taking the solar eclipse photography. They will take that photography before we have contact with them in Antigua. At 15 hours, 5 minutes, 2 seconds into the mission, this is Gemini Control.

END OF TAPE

Gemini Control Houston. Fifteen hours, 33 minutes into the flight of Gemini 12 now. Gemini 12 is currently making a pass on the southern part of the Pacific Ocean. We will have no contact with Gemini 12 until Antigua, which will be at some 16 hours, 5 minutes into the mission. Presently in Mission Control, we are in the process of the change of shift. Cliff Charlesworth, the Flight Director for the green team is currently being briefed on our status by Gene Kranz, who has operated with the blue team most of last night's activities. We should have had our second phasing burn with the SPS by this time, some several minutes ago. However, we will not be able to ascertain just how that burn went until after our solar eclipse photography and at the time when we establish acquisition at Antigua. Flight Surgeon advises that the crew slept well last night. Both members of the crew, Jim Lovell and Buzz Aldrin, having some six and one-half hours of reasonably sound sleep. At 15 hours, 35 minutes into the mission now, this is Gemini Control, Houston.

END OF TAPE

Gemini Control Houston. Fifteen hours, and 58 minutes now into the mission of Gemini 12. Jim Lovell and Buzz Aldrin are now in their tenth revolution in this flight of Gemini 12. We are about four minutes away now from our attempt to rendezvous with a 52-mile wide shadow on the ground, the solar eclipse. This of course is a narrow corridor when you consider that the spacecraft is speeding along in the order of 300 miles per minute. This gives us about seven seconds or so of total eclipse time. Now the Gemini 12 should be in the light shadow of the eclipse and we expect that Jim Lovell has installed his Polaroid window shade at this time. He has a slot at the bottom from which to shoot through. When we reach our total eclipse at 16:01:44 GET, we are going to take the following if possible with the 70 mm Maurer. That will be one one-second exposure and one four-second exposure at 16:01:52;after we go out of our total eclipse, we will maneuver the spacecraft to photograph the ground shadow. At 15 hours -- or 16 hours into the mission, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston 16 hours, 5 minutes into the flight of Gemini 12 now. We are nearing the range of Antigua tracking. Antigua should acquire at about 54 seconds. Fifty-four seconds after the minute, that is. Or some 10 seconds from now. We'll be standing by for that pass awaiting any contact that we might have with the crew which will update us as to their activity with regard to the solar eclipse activity. You will note on the display -- the display that is in Mission Control now, we have an artist concept of what the eclipse might very well look like at this time.

HOU Gemini 12, Houston Cap Com through Antigua, over.

S/C Roger, Houston, this is 12.

HOU Roger, how did the eclipse photography go?

S/C Well, we hit the eclipse right on the money.

HOU Very good. When you get the Agena squared away, we'd like to have you turn the encoder off. We'd like to do a tape dump and a -- reset the timer.

S/C Roger. We were unsuccessful in picking up the shadow, Houston. We couldn't pick it up by the time we got around the eclipse.

HOU Roger. We figured it would be a long ways off, but let me know when you get the Agena lined up.

S/C Roger.

HOU If you can't get it here, we'll get it over Canarys. And if you have a chance, we'd like to know was the H_2O heater circuit breaker on and is it on now?

S/C H_2O heater circuit breaker is on.

HOU Okay, and in case you are worried about it, we had the S-12 door closed prior to waking you up. We are sorry we didn't tell you that over Canarys.

S/C Say again.

HOU We had the S-12 door closed by DCS prior to waking you up and we are sorry we didn't tell you that over Canarys.

(dead air)

Gemini Control Houston. We are still undergoing the Antigua pass. As you heard Jim Lovell say, they hit the eclipse right on the money. However, they probably did not acquire the shadow after they passed through the total eclipse. The ground advised Gemini 12 that the S-12 door was closed.

(dead air)

HOU Gemini 12, Houston Cap Com.

S/C Go ahead, Houston.

HOU Roger. We got about 30 seconds to AOS. You got your encoder on before we could terminate the dump. Would you send TM off zero 3 zero and TM on zero 2 one?

HOU Do you copy?

S/C Roger.

Gemini Control Houston. We've had a loss of acquisition at Antigua. At 16:20 GET, the Gemini 12 crew is scheduled to enter their eat period. At 16:55 over Carnarvon, we will receive a Go/NoGo for 30 dash 1 landing area and purge the fuel cells. At 17:30, we'll start standup EVA preparation. And at 19:43:30 sunset time, the first night standup EVA will begin. At sunset, and that is at 19:43:30 GET. At 16 hours, 15 minutes, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 16 hours, 17 minutes into the flight of Gemini 12 now. We are standing by at the present time as spacecraft Gemini 12 passes over Canary and we are standing by for any conversation that might transpire with the crew. They are contacting the crew now.

S/C Roger.

CYI Okay, have a notal update and the flight plan updates for you when you are ready to copy.

S/C Roger, go ahead.

CYI Okay, your notal update time 16:05, rev 11 - 71.0 degrees west, right Ascension, 11 + 32. Okay, your flight plan update, from 16:20 to 17:30, eat period. 16:55 at Carnarvon, you'll have a Go/NoGo for 30 dash one, purge the fuel cells, section one and section two. We'll give the cryo O_2 and H_2 readout at that time. And they'll give you block 3 PLA update. At 17:30 start EVA -- standup EVA preparation. At 17 + 45 at Antigua, we'd like the S-3 heater on. At 19:43:30, sunset, first night standup EVA. S-13 Gamma Cassiopeiae, yaw 87 degrees north, pitch 30 degrees up. Have you copied so far?

S/C Roger.

CYI Okay, at 21:13:31, sunset, second night, S-13 ... Yaw 150 degrees north, pitch 45 degrees up.

And we have a note here, due to the change in the orbital period, activities in the flight plan have shifted forward approximately one-half hour at 17 hours GET, and have shifted forward about an hour at 24 hours GET.

S/C Roger, understand.

CYI Okay, that is the end of the flight plan update. I'd like to get a water gun count from you.

S/C Roger, water gun is 863.

CYI Copy 863. Okay, 12, you are go down here on the ground. We'll be standing by.

S/C Roger, thank you very much. We'll be eating.

CYI Roger.

HOU Canary Cap Com, Houston Flight.

CYI Come on in, Flight.

HOU Roger, could you ask the crew if they took any water during the night?

CYI Roger.

HOU I mean prior to waking up, I guess, is the question.

CYI Okay. 12, Canary.

S/C Go ahead.

CYI We'd like to know whether you took any water during the night at all? That is prior to waking up.

S/C Roger. Perhaps 10 count.

CYI Roger, copy. Copy, Flight?

HOU Roger, thank you.

CYI Flight, Canarys.

HOU Go, Canarys.

CYI We've completed the tape dump.

HOU Okay thank you.

HOU Canary Cap Com, could we have an Agena contigency India, please.

CYI Roger, coming up.

HOU Canarys, could we have an Agena LOS main, also.

CYI Roger.

Gemini 12, Canarys, about a minute to LOS.

S/C Roger, Canarys.

CYI Houston Flight, Canary Cap Com.

HOU Go Canarys.

CYI Okay, we've had Gemini LOS and Agena LOS. Both vehicles are go.

HOU Roger.

Gemini Control Houston. Sixteen hours, 26 minutes, we've just had loss of signal with Canary. The next station to contact Gemini 12 will be Carnarvon and this will be at 16 hours, 54 minutes, 43 seconds GET. Weather advises that the weather conditions this morning for the flight of Gemini 12 remain satisfactory and in most areas of prime concern, in the mid-Pacific landing zone

centered about 300 miles northeast of Honolulu, partly cloudy skies, winds east 15 knots, and seas 4 feet. In the west Pacific landing zone centered about 600 miles south-southwest of Tokyo, partly cloudy skies, winds east-northeast 10 to 15 knots and seas 3 to 4 feet. In the eastern Atlantic landing zone centered about 300 miles west of the Cape Verde Islands, partly cloudy skies, winds 18 knots, and seas 4 to 5 feet. In the primary landing zone in the western Atlantic centered about 800 miles east of Miami, extensive cloudiness, winds 10 to -- 20 to 25 knots, seas 5 to 7 feet and a few scattered showers. An interesting meteorological feature that should be overflown during the day is a low pressure system with an extensive area of cloudiness and showers about 800 miles northeast of Puerto Rico. At 16 hours 28 minutes into the mission of Gemini 12, this is Gemini Control, Houston.

END OF TAPE

Gemini Control Houston, 16 hours 54 minutes into the flight of Gemini 12 at this time. Jim Lovell and Buzz Aldrin are now in their 11th spacecraft revolution and Gemini 12 is making good an apogee of 162.9 nautical and a perigee of 139 nautical at the present time. We're standing by now for acquisition with Carnarvon tracking. Acquisition with Carnarvon should take place in a matter of seconds now. Over Carnarvon we anticipate a GO/NO-GO decision for landing area 30-1, fuel cell purge. We're coming in with our pass over Carnarvon now..

HOU'	Roger standing by for your GO for 30-1.
SC	Roger standby.
CRO	Flight, Carnarvon
FD	Go ahead
CRO	I show computer is faulty.
HOU	Roger
SC	Carnarvon, 12 here
CRO	Go ahead 12
SC	Roger, fuel cell ..... 18 - do you want all these readouts.
HOU	No, we don't need them, just give us a go.
SC	Say again
HOU	Just give us a go.

SC Roger, we're GO, we've employed a little discrepancy. The RCS failure is about

280 2800 psi and temperature of 58.

HOU Roger.

OK it looks pretty steady down here.

SC Roger

HOU Ok we'll give you a GO for 30-1. We'd like an onboard section - an onboard 02 to water, delta P both sections.

SC Roger, section 1 is 2.1 that's 02 to water and section 2 is 2.1 also. The fuel cell delta P lights are out now.

HOU OK. You can start your purge, section 1 and then section 2.

SC Roger.

HOU OK and I have a PLA update for you.

SC Go ahead on the update.

HOU OK. 13-1 bravo, 18 52 00, 21+00, 24+48, all bank angles are roll left 80, roll right 100, 14-1 bravo 20 27 59, 20+31, 25+30, 15-1 alpha, 22 03 58, 19+56, 26+08, 16-4 bravo, 24 51 47, 21+01, 26+42, 17-4 alpha, 26 27 46, 20+32, 26+04, 18-4 bravo 28 03 43, 19+59, 25+21,

CRO We've had LOS flight.

HOU Roger did you get it all.

CRO That is negative.

Gemini Control Houston, we've had loss of signal over Carnarvon. To recap a bit on our solar eclipse photography, we restate that Command Pilot Lovell advised our Cap Com Bill Anders that he hit the total eclipse righ on the money. However, with regard of the shadow, the Gemini 12 crew had a maximum time of some three minutes to turn the spacecraft and shoot towards the shadow. This is not very long. At that time the shadow was described as being over the ocean and had a very low contrast ratio with the ocean. At the time of the turn the shadow was also a great distance off in that the inclination at the time was quite low. This made the task exceedingly difficult and as a consequence inhibited the success of our second priority item, and that was shooting toward the shadow of the total eclipse on the ground. At 17 hours 1 minute into the mission of Gemini 12 this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston at 17 hours, 23 minutes now into the flight of Gemini 12. Jim Lovell and Buzz Aldrin are currently moving across the South Pacific in their Gemini 12 spacecraft on the tag end of their 11th revolution. Our EVA preparations are now scheduled to start some six to seven minutes from now. The time for this EVA was moved forward approximately or about 30 minutes because we did not, as a matter of fact, go into our high orbit yesterday evening and we wanted to continue with our same lighting conditions and the same star fields for the S-13 experiment. To do this, of course, because of our change in times per revolution period, we've compensated for this by moving our time table or schedule forward. To recap a bit, the first night's sleep in space for Buzz Aldrin was very good. He had some six to six and a half hours of useful sleep. This is the 15th day in space for Jim Lovell and he's taking to it as might be expected, quite naturally. As a matter of fact, Command Pilot Jim Lovell could accurately be described as the Johnny Unitas of Manned Space Flight. With every pass completion Unitas establishes a new football passing record and with every passing moment in this flight, Jim Lovell by the same token, establishes a new time in space record. At 17 hours, 25 minutes, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 17 hours 38 minutes into the flight of Gemini 12 now. We're standing by for acquisition at Grand Turk. Acquisition with Grand Turk is expected at 17 hours 38 minutes 56 seconds into the mission. Some 40 seconds from now. At this time Bill Anders in his discussions with the crew will receive a crew status report. He will also endeaver to finish his planned landing area update which was cut short during their pass, last contact with the crew during their pass over Carnarvon. At 17 hours 39 minutes standing by for our contact with the Gemini 12 Spacecraft. This is Gemini Control.

ANT AOS Antigua

HOU Gemini 12, Houston Cap Com through Grand Turk, over.

SC Roger Houston through Grand Turk.

HOU Roger I am ready to continue your block update. What was the last one you copied?

SC Standby we've got to dig out the book it's in, we're in our EVA prep.

HOU Okay, while you're doing that be advised your RCS B pressure looks good on the ground, we figure it is just cooling off. We'd like your estimate of when the delta P lights went off prior to Carnarvon and was that associated with

drinking any water?

SC This is 12. It might have been Bill because we were fixing breakfast at that time and taking quite a bit of water out of the tank.

HOU Okay, back - about how long prior to Carnarvon was it, do you have any estimate?

SC Just prior to Carnarvon we believe.

HOU Okay would you cycle your cryo quantity read through O2 and H2 for about 10 seconds each?

SC Roger, O2 at this time.

HOU Okay, would you go to H2?
Also we'd like a crew status report from you when you have a chance and would you - is your S3 heater on?

SC Negative S3 heater is not on yet. Wasn't that 45?

HOU Okay, give us a call - you can go on now or give us a call when you get it.

SC Roger, do you want to MARK on it?

HOU No just turn it on.

SC S3 heater coming on, 2, 1, MARK

HOU Roger

SC Start passing your updates.

HOU Okay, what was the last one you got?

HOU Gemini 12, Houston Cap Com, what was the last one you copied?

SC Standby 1.

HOU Gemini 12, Houston, you can go off on your cryo quantity anytime you want.

SC Roger, going off. Do you want the frog egg cover put back on? I assume you do for this EVA.

HOU That is affirmative.

SC Roger.

ALDRIN 18 4 Baker last one.

HOU Roger, got one more. 19-4 Charlie, 29 40 03, 19+15, 24+08, over.

SC Roger, I copied, 19-4 Charlie.

HOU Roger.

HOU We're standing by for a crew status report, when you are ready, Gemini 12.

SC Houston, 12.

HOU Go ahead 12. Go ahead 12 Houston here.

SC Roger, we have both completed meal 2 alpha, water gun is reading 985. We have consumed about the same amount of water. Sleep was about 2 hours solid apiece.

HOU Roger copy.

LOS Grand Turk.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/12/66, 8:34 A. M. CST

HOU — Gemini 12, Houston Cap Com. One minute to Antigua LOS and standing by.

S/C — Gemini 12, roger.

ANT — LOS Antigua.

Gemini Control Houston. We've just had Loss of Signal with Antigua with the Gemini 12 crew. One point of clarification, the crew indicated that they received two hours of solid sleep. Our indications here are that they were in a good reasonable rest condition for a somewhat longer period than that. The indications readings from the medical console on the ground indicate that they had a very restful period indeed. We don't expect too much in the way of conversation with the crew for awhile. This will be a most busy time for astronauts Lovell and Aldrin. They have a seven page EVA preparation check list to contend with which should occupy most of their time. They'll be doing such things as assuring the readiness of their suits for EVA configuration, making sure the camera gear is ready, the handrail for tomorrow's EVA will be unstowed. It's to be positioned today during the dayside pass. And the thermo cover for the frog egg experiment which was mentioned will be put back on to provide protection for this experiment while the hatch is open. To quickly run down what our schedule in ground elapsed time looks to be for

milestones leading up to EVA, at 19.10 ground elapsed time over Texas we should give a go for depressurization. At 19:23 ground elapsed time, assuming all is going well, the crew will start their depressurization of the spacecraft. At 19:28 or thereabouts the hatch should be opened. This would be prior to sunset. And at 19:43:30 the - during the first night pass - astronaut Buzz Aldrin would start on his S-13 experiment. We're now picking up Canary. We expect little or no conversation during this pass but we'll stand by for any that transpires.

CYI Houston Flight, Canary Cap Com.

HOU Go ahead.

CYI Okay, we're showing dead bands narrow on the Agena. There supposed to be a next configuration at this time?

HOU I think there should be an FC2. Stand by.

CYI Okay, they're in FC2 right now.

HOU That's correct, Canary.

CYI Roger.

This is Gemini Control Houston. We have had no contact with the crew over Canary. This, of course, is attributable to the fact that the crew is most involved with their EVA preparations. We expect no contact with the crew. It's a system of negative reporting when all things are going well as they apparently are with our lack of contact at this time. This is

to be expected. Gemini Control Houston, 17 hours, 57 minutes and standing by.

CYI Gemini 12, Canary. About a minute to LOS.

S/C Roger, Canary. We're in EVA prep.

CYI Roger.

CYI Houston Flight, Canary Cap Com. We've had LOS both vehicles. Both were go.

HOU Roger.

Gemini Control Houston. We've just had Loss of Signal with Canary. We're on a brief pass over Kano. This is in the outer ring of acquisition with Kano, and we'll be standing by for any conversation.

END OF TAPE

HOU Gemini 12, one minute Kano LOS.

S/C 12, roger.

KNO Kano has LOS.

Gemini Control Houston, 18 hours, 4 minutes into the flight of Gemini 12 now. We just had loss of signal with Kano. And as we expected, we had no conversation with the crew. Cap Com, Bill Anders, only stood by for any conversation that might transpire; however, to reiterate again, the crew has been most involved with their EVA preparations and we expected no conversation during this pass. At 18 hours, 5 minutes, now into the mission of Gemini 12, our next station to contact will be Carnarvon. This is at 18 hours, 27 minutes, 44 seconds GET. So this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 18 hours 23 minutes into the flight of Gemini 12 now. Jim Lovell and Buzz Aldrin are on their 12th revolution. The spacecraft Gemini 12 is presently approaching Carnarvon tracking. With regard to today's EVA, we are following the same EVA sequence in Gemini 12 as was practiced in Gemini 10 by Mike Collins. Today we have the standup EVA and tomorrow the umbilical EVA. Although Collins' standup EVA was shortened by an eye-watering problem, he fared well during the umbilical EVA. Only a spacecraft fuel shortage closed the activity early. And there is a school of thought that an initial exposure to the vacuum of space in a standup environment might aid for the purposes of orientation in EVA. So this morning, we have the standup EVA built around the S-13 UV photography covering two night passes, then a day pass, then another night. We expect hatch opening shortly before sunset for this first night. Our dayside pass should be a busy one differentiating somewhat from earlier standup EVA's. The -- at this time, Lovell will, during the dayside pass, or before the dayside pass, Lovell will maneuver the Gemini 12 spacecraft to heads down position. Aldrin will install the 16 mm EVA camera which will be used tomorrow for evaluation today. He'll install the hand rail which will be left intact for tomorrow's umbilical EVA. He will retrieve and replace some GLV strips, these are glass-type strips to measure contamination. He exercises, he'll retrieve the S-12 micrometeorite collection package, and try for some S-5 and S-6 photography with his camera. During this time, Lovell will reconfigure the

S-13 for further S-13 -- S-13 camera for further photography during the second night pass. One item that is rather unique. During today's standup EVA will be two sets of exercises. Both of these will be performed for thirty seconds or so. One will be done before Aldrin stand ups, but after the cabin is depressurized. The second will be done during the dayside pass. We expect that he will move his hands to his helmet and back at the rate of about once per second. And this activity will be measured or calibrated with a metabolic cost of this activity predetermined in the case of Aldrin on the ground. And we'll note the differences between the two environments. We continue to stand by. We are some one minute now away from acquisition with Carnarvon tracking. However, we expect little or no conversation during this pass as the crew is still involved in preparations for their standup EVA. At 18 hours, 27 minutes, 16 seconds, this is Gemini Control Houston.

CRO I have TM-1 solid, Gemini.

HOU Roger.

CRO Gemini 12, Carnarvon. Standing by.

S/C Gemini 12, roger.

CRO All systems are go Gemini, all systems are go Agena.

HOU Roger, Carnarvon.

(dead air)

END OF TAPE

Gemini Control Houston, 18 hours 35 minutes - no conversation whatsoever over Carnarvon. Gemini 12 crew is obviously still involved in their EVA preparations and we have one minute until LOS.

SC Gemini 12 Roger.

CRO Carnarvon has LOS Gemini and Agena. All systems GO at LOS.

HOU Roger Carnarvon.

Gemini Control Houston, 18 hours 36 minutes now into the flight of Gemini 12. We've had loss of signal at Carnarvon. The next station to acquire Gemini 12 will be Texas at 19 hours 10 minutes 28 seconds into the flight of Gemini 12. Over Texas we expect Bill Anders, Cap Com Bill Anders, here in Mission Control to be in contact with the crew and this would be a milestone contact because at this time if the situation is suitable he will give a GO for depressurization. So at 18 hours 37 minutes 25 seconds this is Gemini Control.

END OF TAPE

Gemini Control Houston at 19 hours, 10 minutes into the flight of Gemini 12 at this time. We're standing by for contact over Texas and at this time we expect Bill Anders to talk to the crew with regard to their depressurization. If we receive a go over Texas they will start depressurizing the spacecraft over Canary. Standing by at 19 hours, 10 minutes. This is Gemini Control.

HOU — Gemini 12, Houston Cap Com, through Texas and standing by.

S/C — Roger, Houston. We're going through our suit integrity check now.

HOU — Roger.

Gemini Control Houston. Still standing by during this pass over Texas.

(PAUSE)

HOU — Gemini 12, Houston Cap Com. Over.

S/C — Houston, this is 12.

HOU — Roger. We'd like you to pump up your O_2 pressure when you go to manual O_2 heater until you get 850 psi.

S/C — Understand pumping up the O_2 till 850.

HOU — Correction, that's 700.

S/C — My .... was up to about .3 to .4 and my command pilot's was .4.

HOU — Understand. Make that O_2 pressure 700.

S/C Understand 700. It's 650 now.

HOU Right.

HOU Gemini 12, Houston. Over.

S/C This is 12, go ahead.

HOU Roger, 12. You're go for depress on your schedule.

S/C This is 12. Roger. We'll be depressing about 19:23.

HOU Roger.

This is Gemini Control Houston at 19 hours, 18 minutes into the flight of Gemini 12 now. You just heard Cap Com Bill Anders give a go for depressurization. The crew was advised to pump the pressure up slightly or move the pressure up slightly and this was done with the manual O_2 heater aboard the spacecraft. It was reading 650 psi. They've moved it, during the process of moving it, to 700 psi.

S/C Houston, you have anything you want to add to our jettison bag?

HOU Stand by.

HOU Bermuda go remote.

BDA Bermuda remote.

HOU Gemini 12, Houston. That's negative, over.

S/C Okee doke. Be advised that the right mike in the pilot's helmet appears to be inoperative. I'm using just the left.

HOU Understand.

END OF TAPE

HOU Gemini 12, Houston, over.

S/C Go ahead Houston.

HOU Roger. Would you check your audio UHF TR number 2 circuit breaker?

S/C Roger. Number 2 audio is up and on.

HOU Roger.

HOU Gemini 12, Houston. One minute to LOS. See you at Canarys in about three minutes.

S/C Roger.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead, Canary Cap Com.

HOU Okay. Everything looked good going over the hill here. Standing by for you.

CYI Roger.

This is Gemini Control Houston. We are standing by now for our pass over Canary./ As soon as we have an indication as to the status of hatch opening, we'll pass this along to you. Nineteen hours, 26 minutes, 54 seconds, this is Gemini Control.

This is Gemini Control Houston. Nineteen hours, 27 minutes. Canary has acquisition. The spacecraft has indicated depressurized and go. We are standing by. Cabin depressed and exercise. This is the arm raising exercise has been completed. The first of these exercises.

Canary advises Flight that everything is looking good at this time. The cabin is depressurized. (pause)

Gemini Control Houston. The suit pressures look very good at this time. Still standing by during this pass over Canary.

Gemini 12 advises he's getting set and the lights are checked out. (pause)

Gemini Control Houston. Nineteen hours, 33 minutes. We are advised the hatch is open, was opened right on time. (pause)

Gemini Control Houston. Aldrin advises he has a small tendency to float out, but very little. This is, no doubt, an outgassing effect that occurs when the hatch is open. He's restrained by his oxygen hoses as well as the fabric tether, which Lovell can operate much like a seat belt. (pause)

END OF TAPE

Gemini Control Houston, we are about one minute until LOS over Canary and all aspects of the flight look good at this time.

This is Gemini Control Houston, 19 hours and 35 minutes into the flight of Gemini 12 at this time. We are - have just been acquired or will be acquired - we've just been acquired by Kano who has acquisition and we'll pick up the conversation at this time, any conversation that might transpire.

SC Okay I'm in rate command,.or rate test.

ALDRIN Notice any motions of the spacecraft combination when I move around just a little bit?

LOVELL Yes a little.

ALDRIN That's how I think we got turned around. Okay at 20 minutes - orient of first star field. I got the first star which is Cassiopeia, the exposure is of 2/20 seconds - 2 at 50 seconds and 2 at 2 minutes

LOVELL Give me the MARK

ALDRIN You got a MARK.

LOVELL Right on time there it looks like.

ALDRIN Soon as I get there I'm going to have to give you the ....

ALDRIN That's vehicle pressure

LOVELL Okay I am just getting into position here .....

ALDRIN Did you hear those thrusters fire when you move around?

LOVELL Negative.

ALDRIN I said did you hear those thrusters fire when you move around?

LOVELL Can't hear you.

ALDRIN Can you hear those thrusters firing when you move aroun ?

LOVELL Oh, no, I'm not.

ALDRIN Well I do.

LOVELL Seems a good amount of garbage area up here. Things floating all around us. Look like some of the paint has peeled on the Agena.

ALDRIN Roger in the first stage.

LOVELL Yes.....the velco covering on the ....cover is melting.

HOU Gemini 12, Houston Cap Com. We have about one minute to Kano LOS. Your VOX is going five by and Buzz will you confirm that you can see stars in the daylight? Over.

ALDRIN Negative, I won't really confirm that. It looked like there was stars when I first got up but a

closer examination - there is so much moving away from both vehicles - hate to say it but it appears to be going up.

HOU Understand, one minute.

LOVELL It may be going in another direction from you however, that would be the way that I am looking for it.....

HOU Understand.

LOVELL I think I mistook that for a star.

HOU Copy.

LOVELL The .....

ALDRIN Okay can you look back and see all of that.....

LOVELL Now when you look to the sun we might ~~see~~ a little bit far to the right.

KNO Kano has LOS

Gemini Control Houston, we've just had loss of signal over Kano, at 19 hours 42 minutes . Heartrates at the start of our EVA ran like this. For Command Pilot Jim Lovell 85, for Pilot Ed Aldrin 92, respiration rates for the command pilot was 15 and for the pilot 18. Very shortly the crew will be heavily involved in their S-13 experiment. We will shoot first at Gamma Cassiopeia which is in the northern sky, secondly at Sirius which is the brightest star in the sky visually and the third field will be Gamma Velorum down in the southern part of the Milky Way. They

will use the grating attachment for this experiment. At this time we have a tape ready for our pass over Canary and we'll play that tape for you now.

CYI Gemini 12 Canary Cap Com standing by

SC Roger. Cabin is depressed, exercise is completed.

CYI Roger, you're looking good down here.

CYI Flight, Canary

HOU Say again Canary

CYI I say everything looks real good,both suit pressures are up, 02 pressure is holding good.

HOU Roger, how about sending some summaries?

CYI They are on the line.

HOU Okay, we have them.

HOU Canary from Flight.

CYI Go ahead Flight.

HOU Send us a bravo Gemini.

CYI Bravo, Gemini.

SC We're in VOX now.

LOVELL Jettison just missed the dipole.

ALDRIN Okay, ...for S-13.

LOVELL .....lights already checked out.

ALDRIN Okay

ALDRIN ....watching your attitude thruster firing, it is really something.

LOVELL We'll go at about.....aren't we.

ALRDIN The star is right behind us.

I believe I see stars all around us.

LOVELL Are you sure that is not the repress.

ALDRIN Stars in the daylight. I don't think so.

Wait a minute that one star was that waste poucher.

HOU Canary from Flight, send us another main, Gemini.

CYI Roger.

SC We've got some of the timer cord hanging around me here.

LOVELL What's the air dump?

ALDRIN Can't say.

HOU Flight, Agena Charlie.

ALDRIN It looks like I might have to pull some of that stuff away when I get back to the adapter.

LOVELL Why await standard dynamics.

ALDRIN Okay, I'm just drifting here it looks like I have a small tendency to float up but very little, I'm completely free to push myself away and it .....away from the hatch. There doesn't seem to be any tendency at all to want to leave the hatch.

.....out of the way of those washers. I presume particles coming out of the cockpit, but they don't seem to be pushing me out. I imagine there is a little bit of tension on my hoses now but otherwise I'm moving out completely free. I see ...

LOVELL Okay.

ALDRIN A beautiful view.

Now one of the mountains over there.

LOVELL I'm going to rate command Buzz.

CYI Canary is about one minute to LOS.

SC Roger, can you hear us in VOX.

Canary this is 12, can you hear us in VOX.

CYI Roger, we are reading you loud and clear.

SC Roger.

ALDRIN A thrill.

LOVELL Are you in a good position Buzz?

ALDRIN For what the picture?

LOVELL Yes.

ALDRIN Okay, can you tell me if I'm going SEF I can see I'm slipping, can you tell me?

LOVELL Yes your going SEF.

ALDRIN Okay, /...cloud patterns

LOVELL I'm going to rate command Buzz.

.....out of the way of those washers. I presume particles coming out of the cockpit, but they don't seem to be pushing me out. I imagine there is a little bit of tension on my hoses now but otherwise I'm moving out completely free. I see ...

LOVELL Okay.

ALDRIN A beautiful view.

Now one of the mountains over there.

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Canary this is 12, can you hear us in VOX.

CYI Roger, we are reading you loud and clear.

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LOVELL Are you in a good position Buzz?

ALDRIN For what the picture?

LOVELL Yes.

ALDRIN Okay, can you tell me if I'm going SEF I can see I'm slipping, can you tell me?

LOVELL Yes your going SEF.

ALDRIN Okay, /...cloud patterns

LOVELL I'm going to rate command Buzz.

ALDRIN	Let me back down in the hatch a little bit.
HOU	Canary Cap Com, Houston Flight.
CYI	Go ahead Flight.
HOU	Send us an Agena Charlie.
CYI	Say again
HOU	Agena Charlie
CYI	Roger
FD	Kano remote
FD	Canary is local
KNO	Kano is remote and we have acquisition.
HOU	Gemini 12, Houston Cap Com through Kano and standing by.

END OF TAPE

Gemini Control Houston, 20 hours, two minutes into the flight of Gemini 12. The Gemini 12 spacecraft has been out of range of acquisition for some time now; however, we are currently approaching the Carnarvon tracking station. There is approximately ten to 15 minutes remaining on our nightside pass. The crew is no doubt completing the final phases of their first S-13 experiments. We have picked up Carnarvon now and we're standing by for any conversation.

HOU Carnarvon from Flight. What did you say?

S/C Carnarvon, how about turning off that Delta P circuit breaker?

CRO Stand by.

HOU Flight, Carnarvon.

S/C I rather doubt that it would effect pictures taken by the grating but it just might interfere with ....

CRO Okay, stand by and I'll get them in Houston.

HOU Flight. Go ahead.

CRO Roger. Go ahead and turn it off.

S/C Okay.

ALDRIN Can you turn the cabin light on, Jim?

LOVELL Yes. You may have to move the ... Buzz.

ALDRIN Let me know when you're ....

LOVELL I've got it.

ALDRIN Now?

LOVELL Now.

ALDRIN	I took them at 8 seconds, okay? Is that all right?
HOU	Roger.
LOVELL	You're facing to the left.
ALDRIN	Hey, Jim, move it to the left.
LOVELL	I don't think you're aligned right.
ALDRIN	Well, I guess it's up to the left.
LOVELL	Yeh, it should be going up towards it. Okay, you're coming up on Antares.
S/C	Okay, I got it. I got Antares.
S/C	Okay.
S/C	You know we're way behind time. I don't know how they expect us to do these things and then.....
S/C	Got it lined up?
S/C	To the right of .....
S/C	.....to the left of us.....
S/C	Yes.
S/C	I got a roll. Watch out for your knee. Watch out for your knee.
S/C	Where is it?
S/C	I'll do it. Don't you do any of it.
HOU	Carnarvon from flight. Agena main.
CRO	Roger.

S/C	What's that forward .....
S/C	Must be ...., I suppose.
S/C	What's that before us?
S/C	Must be.. Orion.
S/C	garbled
S/C	hard right.
S/C	Stand by a second.
S/C	...401 nominally.
S/C	Good pictures, Buzz.
S/C	What's that?
S/C	No reflections. Okay, stand by 20 seconds.
	All set?
S/C	Okay, go ahead.
S/C	Stand by. Mark.
S/C	5, 4, 3, 2, 1, Mark. Stand by for next one.
	Stand by. Mark.
S/C	garbled
S/C	okay. Stand by..huh?
S/C	Get your foot down.
S/C	How's that?
S/C	Okay. Stand by. Mark. 4, 3, 2, 1 Mark.
	Stand by for .... Stand by. Mark.
S/C	Nothing on it.
S/C	Yes.
CRO	One minute to LOS. Standing by.
S/C	Stand by.

S/C We got a blur in this thing, have we got - okay, stand by now. 5, 4, 3, 2, 1, Mark it. Okay, stand by for one in one minute. Tell me when you're ready.

S/C Right.

S/C Stand by. Mark.

CRO Carnarvon has telemetry LOS, Agena and Gemini.

HOU Roger.

Gemini Control Houston at 20 hours, 11 minutes into the flight of Gemini 12. We've just had Loss of Signal over Carnarvon and an amazingly calm pilot, Buzz Aldrin, as you heard. He was performing his S-13 Star Photography. Current heart rates on Command Pilot Aldrin read 75 - or on pilot Aldrin I should say, read 75. On Command Pilot Jim Lovell, 76. Respiration rates for Jim Lovell, 12. For Buzz Aldrin, 18. Twenty hours, 12 minutes, 34 seconds, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 20 hours, 23 minutes into the flight of Gemini 12. The Gemini 12 spacecraft is now in daylight. We are approaching acquisition with Canton tracking station and should acquire Canton momentarily. We are advised that the official hatch opening time, GET, was 19:29:01. Standing by for acquisition at Canton. This is Gemini Control.

HOU	Gemini 12, Houston Cap Com through Canton and standing by.
S/C	Okay, stand by. I can't do anything now.
HOU	Gemini 12, Houston.
S/C	We're on a tight schedule right now.
HOU	Gemini 12, Houston Cap Com through Canton and standing by.
LOVELL	Buzz, watch your white GLV strip.
ALDRIN	Okay. I'm doing it right now.
LOVELL	Take pictures.
HOU	Gemini 12, Houston Cap Com, through Canton and standing by.
S/C	Roger, we're in daylight again. Tell ... we could not catch Gamma Velorum because we didn't have time by the time we got oriented out on the platform.
HOU	Roger, copy.
ALDRIN	All right, we'll tape them in.

LOVELL All right. You turn the camera on. I've got the radiator on , I'm going to ... I believe you're on the S-12 now.

ALDRIN Okay. ...pouch.

LOVELL It was in a pouch.

Speak up.

ALDRIN Okay. I'm off a little bit on the ...

LOVELL ..... is getting against my back now.

..... and wait for a command. ...(garbled)

ALDRIN Did they come up with anything from the ground yet?

LOVELL Its still blowing.

ALDRIN Oh.

LOVELL Stand by one and let me go ahead with the air-to-ground.

ALDRIN Stand by one.

LOVELL Let me go ahead with the air-to-ground.

I've got to give water and hand rate gyro.

ALDRIN Let me get started and I'll..

LOVELL Start your Maurer and ... okay the lanyard, and essentially that'll be all but depress.

ALDRIN Okay, I'll help with the K-pumps.

LOVELL (garbled)

We'll change at the first ... The circuit breaker is on. (garbled.) Make the third ...

ALDRIN Do you want to give me a code?

LOVELL Well, let's see. Hold it.

ALDRIN (garbled) DF? is it

LOVELL No. I say how/looking?

ALDRIN Its just fine.

HOU Gemini 12, Houston. One minute to LOS.

S/C Roger, Houston, can you hear us?

HOU Roger, reading you five by.

S/C Roger, the nose handrail is in. Tapes have been changed. Buzz was on the prism now of the S-13.

HOU Roger. We've been copying.

S/C We'll have to pump up the oxygen here pretty soon.

HOU Okay.

S/C ... out.

CTN Canton has LOS.

Gemini Control Houston. Twenty hours, 31 minutes into the flight of Gemini 12 at this time. Our communications over Canton were extremely rugged and hard to follow. However, we did receive an indication that the prism attachment has been placed on the S-13 camera by Command Pilot Lovell in preparation for the second set of S-13 UV star photography. We also understand that Aldrin did acquire the GLV strips. He's moving right down the time lines that we anticipated. We also read that he did not acquire or did not have time to acquire Gamma Velorum at the end of his first night pass. We do expect to reacquire the spacecraft over Guaymas at

20 hours, 41 minutes, 20 seconds. In the meantime, we have a weather advisory regarding the weather on the stateside pass. The near stationary frontal system throughout the southeastern U.S. is associated with extensive cloudiness and scattered shower activity and this is as shown in the scalloped area on the weather map. Only a few scattered clouds prevail over the southwestern U.S. from Texas to southern California, so viewing conditions should be reasonable along that portion of the ground track. Another frontal system and associated cloudiness is moving into the northwestern part of the U.S. At 20 hours, 33 minutes, this is Gemini Control.

END OF TAPE

This is Gemini Control Houston, 20 hours, 41 minutes into the mission of Gemini 12 now. We are coming up on the final phases of our 13th revolution during acquisition with Guaymas and we will have a continuous run over the States following Guaymas and we'll stand by now for our pass over Guaymas.

S/C ...over here by your window?

S/C Yeah.

S/C Unfortunately, I can't read your trigger.

HOU Gemini 12, Houston Cap Com thru Guaymas, standing by.

Lovell Roger, Houston, this is 12. We are standing by too.

Aldrin Ah, there we are.

Lovell Everything has been completed, except retrieving the EV camera, Buzz is out there taking all kinds of pictures of water.

HOU Roger

Aldrin It looks like a good heading here, Jim. There's Baja, California, Southern California coast out there.

Lovell Houston, without a platform it might be a little difficult to get all three star fields, it takes a little while to get from one to the other. Does the experimenter have any choice of which of these three star fields on the second night pass he doesn't want to have??

CAP COM That's affirmative. If you want to drop one, drop the second one, Algo.

Lovell Roger, we'll drop Algo if we don't have time.

CAP COM That's affirmative.

Aldrin — It looks great...down there... a little....can you move it just a tad?

Lovell — Just a few feet. No, its way up there Buzz, its already loose and I think all the way.

Aldrin — Its all the way?

Lovell — If you're ready to come on down, I can't even see the other end of it.

Aldrin — Ok.

Lovell — I've got the blue.

Aldrin — Ok, that's it.

Lovell — ....I don't know....too loose.....into everything.

Aldrin — Roger (garbled)

Lovell — Look at that, there's California wanting to get some shots of New Mexico, 102.

Aldrin — Roger. Can't see (garbled) ...pretty clouds down there.

HOU — Texas Remote, Guaymas local.

TEX — Texas Remote

GYM — Guaymas local.

S/C — How is the weather in Houston?

CAP COM — Its cloudy.
Ah, roger. /We have a front laying just off the Coast.

Aldrin — Yes, I think I can see it.

Lovell — What did I tell you, Buzz? Four days vacation with pay!! To see the world!!

Aldrin Yeah!! Hey, don't everybody smile down there.

CAP COM We are smiling.

Aldrin ...pitch down a little more Jim?

Lovell Pitch down?

Aldrin Yeah.

Lovell (garbled) Ok.

Aldrin ...now over here to the South.

Lovell ...coastline there to the left.

Aldrin Ok. ...me how much is left in the...

Lovell ...know, but let's take some pictures of it. We are going to retrieve it pretty soon.

Aldrin We ought to come over Florida at this pass.

Lovell Heading over the Gulf now?

Aldrin Yeah.

CAP COM You'll be passing over the southern tip of Florida, Gemini 12.

Lovell Roger.....can't be a little higher.

CAP COM Roger.

Aldrin Was there a definite turbine problem or was it your concern over the attitude control that scrubbed the burn?

CAP COM Stand by.

Lovell Hey Buzz, did you shoot the contrail down there?

Aldrin Where abouts?

Lovell Right over the hull, right on the nose. See it?

Aldrin Yeah, picked up the contrail.

Lovell Good.

Aldrin OK, looks like Florida is coming up. How about pitching down just a little bit more? There are the Keys.

Lovell ....that National flight to Houston.

Aldrin Yaw right a little, if you can.

CAP COM That's the backup crew.

Lovell Right.

Aldrin ....going the wrong way.

CAP COM No, that's the backup crew.

Gemini 12, Houston. There was nothing wrong with the Agena attitude control, we are just not going to make any PPS burns.

Lovell Roger, understand.

Aldrin Want to pitch down a little more Jim, roll right.

Lovell Roll right?

Aldrin Yeah.

Lovell Hey, look at that.

Aldrin Recognize that?

Lovell Looks like, uh, let's see, Mobile??

Aldrin Would you believe Tampa?

Lovell OK, I'll believe Tampa.